

**Internal distribution code:**

- (A)  Publication in OJ  
(B)  To Chairmen and Members  
(C)  To Chairmen  
(D)  No distribution

**Datasheet for the decision  
of 06 May 2009**

**Case Number:** T 0085/06 - 3.3.07

**Application Number:** 95921136.8

**Publication Number:** 0712659

**IPC:** B01J 20/26

**Language of the proceedings:** EN

**Title of invention:**

Water absorbent, process for producing the same, and absorbent article containing the same

**Patentee:**

NIPPON SHOKUBAI CO., LTD.

**Opponent:**

Stockhausen GmbH

**Headword:**

-

**Relevant legal provisions:**

EPC Art. 123(2)

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

-

**Keyword:**

"Amendments - added subject-matter (yes)"

**Decisions cited:**

-

**Catchword:**

-



Case Number: T 0085/06 - 3.3.07

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.07  
of 06 May 2009

**Appellants:** NIPPON SHOKUBAI CO., LTD.  
(Proprietor of the patent) 1-1, Koraihashi 4-chome  
Chuo-ku  
Osaka-shi, Osaka-fu 541 (JP)

**Representative:** Harrison, Ivor Stanley  
Withers & Rogers LLP  
Goldings House  
2 Hays Lane  
London SE1 2HW (GB)

**Respondents:** Stockhausen GmbH  
(Opponent) Bäckerpfad 25  
D-47805 Krefeld (DE)

**Representative:** Neumann, Ditmar  
KNH Patentanwälte  
Kahlhöfer Neumann Herzog Fiesser  
Postfach 10 33 63  
D-40024 Düsseldorf (DE)

**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 22 November 2005  
revoking European Patent No. 0712659 pursuant  
to Article 102(1) EPC.

**Composition of the Board:**

**Chairman:** S. Perryman  
**Members:** D. Semino  
F. Rousseau

## Summary of Facts and Submissions

- I. The appeal lies from a decision of the Opposition Division to revoke European Patent 0 712 659, which originates from international patent application PCT/JP95/01150 published as WO-A-95/34377. Claims 1, 7 and 8 as granted read as follows:

"1. An absorbing agent obtained by preparing an absorbing agent precursor by polymerisation of an unsaturated carboxylic acid monomer or a salt thereof and adjusting the particle diameter of the precursor to have an average particle diameter in the range 200 - 600  $\mu\text{m}$  and including up to 10 percent by weight of particles having a particle diameter of less than 106  $\mu\text{m}$ , and performing a heat treatment on said precursor in the presence of a surface crosslinking agent so that the absorbing agent has a diffusing absorbency under pressure of not less than 30 g/g after absorption has continued for 60 minutes, expressed as the weight of physiological saline absorbed per unit weight of absorbing agent under an applied load of 20 g/cm<sup>2</sup>."

"7. An absorbing agent according to any preceding claim, wherein the agent has a water soluble component from above 0 and up to 7% by weight."

"8. An absorbing agent according to any preceding claim, wherein the agent also contains a dispersant."

- II. A notice of opposition had been filed against the granted patent, in which revocation of the patent in its entirety was requested on the grounds of

Article 100(a) EPC (exclusion from patentability, lack of novelty and lack of an inventive step) as well as Article 100(b) EPC (insufficient disclosure).

III. The decision was based on the claims as granted as a main request, a first auxiliary request filed during the oral proceedings held on 17 October 2005 and a renumbered second, third and fourth auxiliary request previously filed with letter dated 15 September 2005.

Claim 1 of the first auxiliary request corresponded to claim 1 as granted with the addition of the feature that the preparation of an absorbing agent precursor by polymerisation of an unsaturated carboxylic acid monomer or a salt thereof took place "in the presence of a cross-linking agent". Claim 1 in the second, third and fourth auxiliary requests was identical to claim 1 as granted.

IV. The Opposition Division revoked the patent for insufficiency of disclosure on the basis of reasons which can be summarised as follows:

(a) The invention as defined in claim 1 of the patent as granted was not sufficiently disclosed since the disclosure in the patent did not enable the skilled person to perform the invention over the entire scope of the claim, namely to make absorbing agents with diffusing absorbency under pressure considerably above the minimum value included in the claim and using any of the chemicals indicated in the patent as being suitable.

(b) None of the auxiliary requests was considered to overcome the objection of lack of sufficiency.

V. On 23 January 2006 the patent proprietors (appellants) filed a notice of appeal against the above decision, the prescribed fee being paid on the same day. In the statement setting out the grounds of appeal filed on 31 March 2006, the appellants submitted an amended set of claims as a main request whose claim 1 corresponded to claim 1 of the first auxiliary request in the opposition proceedings and five auxiliary requests which included further limitations of claim 1.

VI. In their response to the statement setting out the grounds of appeal, the opponents (respondents) maintained their objections on insufficiency of disclosure, lack of novelty and lack of inventive step and introduced objections under Articles 84 and 123(2) EPC related to the amendments with respect to the claims as granted. With a further letter dated 11 December 2008 they submitted document D32 (EP-A-0 668 080) to support a further objection of lack of novelty under Article 54(3) EPC against claim 1 of the main request.

VII. In reaction to a communication of the Board sent in preparation for oral proceedings, the appellants withdrew their requests on file and submitted a main request and nine auxiliary requests with letter of 6 April 2009. Claim 1 of the main request still corresponded to claim 1 of the first auxiliary request in the opposition proceedings.

VIII. Oral proceedings were held on 6 May 2009.

After a debate on admissibility of document D32 into the proceedings and validity of the priority for claim 1 of the main request and for the embodiments relating to the examples of D32, at the end of which the Board admitted D32 into the proceedings, the appellants withdrew their requests on file and submitted a new main request, a new first auxiliary request and a new second auxiliary request as their only and final requests.

Claim 1 of the new main request and of the new first auxiliary request read as follows:

"An absorbing agent obtained by preparing an absorbing agent precursor by polymerisation of an unsaturated carboxylic acid monomer or a salt thereof in the presence of a crosslinking agent and adjusting the particle diameter of the precursor to have an average particle diameter in the range 200 - 600  $\mu\text{m}$  and including up to 10 percent by weight of particles having a particle diameter of less than 106  $\mu\text{m}$ , and performing a heat treatment on said precursor in the presence of a surface crosslinking agent so that the absorbing agent has a diffusing absorbency under pressure of not less than 30 g/g after absorption has continued for 60 minutes, expressed as the weight of physiological saline absorbed per unit weight of absorbing agent under an applied load of 20 g/cm<sup>2</sup>, wherein the agent has a water soluble component from above 0 and up to 7% by weight, and contains a dispersant."

Claim 1 of the new second auxiliary request corresponded to claim 1 of the new main request with the addition of an upper limit for the diffusing absorbency under pressure after absorption has continued for 60 minutes, which was limited to be "not more than 34 g/g".

IX. The arguments of the appellants can be summarised as follows:

- (a) As regards the grounds of insufficiency in the appealed decision, the numerous examples and comparative examples in the application provide sufficient information for putting the invention into practice over the whole scope of the claim without undue experimentation, the presence of an upper limit on the diffusing absorbency being irrelevant in the context of the invention.
  
- (b) As regards novelty with respect to D32, its priorities did not disclose in the examples the average particle diameter of the precursor and no specific value could be considered as the inevitable result of the processes described therein, so that the embodiments in the examples did not enjoy any priority date and could not be cited under Article 54(3) EPC. In addition to this, its late filing during the appeal proceedings and the fact that it was a well-known document for the respondents, who had opposed the European patent resulting from it, justified the request that D32 not be admitted into the proceedings.

(c) With respect to the requirements of Article 123(2) EPC, claim 1, 7 and 8 as granted together with the disclosure in the paragraph bridging original pages 10 and 11 (all citations indicated by the appellants relating to the original application refer to the A publication) provided a basis for claim 1 of the new main request. The first full paragraph of page 5 provided a further basis for the presence of a crosslinking agent and a dispersant in combination, while in the paragraph on page 4, lines 19-32 an absorbing agent with a diffusing absorbency under pressure of not less than 30 g/g and a water soluble component from above 0 and up to 7% by weight in combination was disclosed.

X. The arguments of the respondents can be summarised as follows:

(a) With respect to insufficiency of disclosure, the examples and the comparative examples in the application did not provide a general teaching which could be applied over the whole scope of the invention without undue burden; the absence of an upper limit for the diffusing absorbency was relevant since only values very close to the lower limit were obtained in the examples.

(b) With respect to D32, example 2, which referred back to referential example 1, was present with identical starting material, identical steps in the manufacturing of the absorbent material and identical properties of the obtained material in the priority document filed on 17 February 1994



(JP 20295/94), the only difference being that no value for the average particle diameter of the precursor particles was given in the priority document. However, due to the identity of the methods of manufacturing of the precursor, the precursor particles had inevitably the same value of the average particle diameter so that that priority was valid for the embodiment in the mentioned example, which was thus relevant under article 54(3) EPC. The close similarity of example 2 of D32 with example 18 of the contested patent despite the absence in D32 of a measurement of the diffusing absorbency under pressure of the obtained absorbing agent led either to lack of novelty under Article 54(3) EPC of claim 1 of the main request filed with letter of 6 April 2009, in case it were accepted that values of the diffusing absorbency under pressure falling into the claimed range were obtained on measurement of the parameter in the product of example 2 of D32, or to lack of sufficiency of disclosure under Article 83 EPC, if it were disputed that the product of example 2 of D32 did not implicitly possess values falling into the claimed range. The relevance of D32, its filing well before the summons to oral proceedings and the fact that it was an application of the appellants themselves justified admission into the proceedings.

- (c) As to the requirements of Article 123(2) EPC for claim 1 of the new requests, the original application disclosed in the first full paragraph of page 5 (all passages cited by the respondents refer to the A publication) the presence of a

dispersant only in combination with a crosslinking agent having a specific composition and used in a specific amount in the preparation of a precursor of an absorbing agent. In particular the crosslinking agent had to be the product of a specific esterification reaction run under specific conditions leading to the formation of a main esterification component and a high-boiling component in a specific weight ratio (see in particular page 5, lines 30-39 and 51-56). In addition, the original application did not provide a basis for an absorbing agent with a diffusing absorbency under pressure of not less than 30 g/g and a water soluble component from above 0 and up to 7% by weight in combination.

XI. The appellants requested that the decision under appeal be set aside and that the patent be maintained on the basis of the new main request or of the new first auxiliary request or of the new second auxiliary request, all submitted at the oral proceedings on 6 May 2009.

XII. The respondents requested that the appeal be dismissed.

## Reasons for the Decision

1. The appeal is admissible.

### *New main request*

2. *Amendments*

- 2.1 Claim 1 of the new main request differs from claim 1 as granted in that:

- (a) the preparation of an absorbing agent precursor by polymerisation of an unsaturated carboxylic acid monomer or a salt thereof takes place "in the presence of a crosslinking agent";

- (b) the absorbing agent "has a water soluble component from above 0 and up to 7% by weight";

- (c) the absorbing agent "contains a dispersant".

- 2.2 While additional features (b) and (c) were present in granted claims 7 and 8 which were formulated as dependent on any preceding claim including granted claim 1, no crosslinking agent for the preparation of the absorbing agent precursor was present in any of the granted claims directed to an absorbing agent, so that the addition of feature (a) and its combination with all the further features of claim 1 of the new main request is subject to examination with respect to the requirements of Article 123(2) EPC.

2.3 The original application discloses the preparation of an absorbing agent precursor by polymerisation of an unsaturated carboxylic acid monomer or a salt thereof in the presence of a crosslinking agent and a dispersant in several instances (see page 7, line 16 to page 8, line 17; page 16, line 12 to page 17, line 1; page 20, lines 7-13; page 24, line 7 to page 25, line 1; page 26, line 12 to page 29, line 12; claims 21 and 29; all citations of the original application in the Reasons for the decision refer to the translation of the original Japanese application filed upon entry into the European phase). However, in all occurrences it is clearly specified that "improved" values of diffusing absorbency under pressure and a small amount of water soluble component for the final absorbing agent can be achieved only if a specific crosslinking agent in a specific amount is used in the presence of a dispersant. The kind of crosslinking agent and its amount are those recited in original claim 21, which concerns a process of manufacturing a precursor of an absorbing agent and specifies that an aqueous solution polymerisation of a hydrophilic unsaturated monomer having at least 50 mole percent neutralised acrylic acid as a main component takes place "in a (*sic*) presence of a dispersant, using a crosslinking agent composed of a main component and a high-boiling component in an amount in a range of not less than 0.05 mole percent and not more than 0.5 mole percent with respect to a total amount of the hydrophilic unsaturated monomer, wherein a ratio in weight of the main component of said crosslinking agent to a high-boiling compound is in a range of 75/25 to 99/1, a main component of said crosslinking agent is composed of an ester compound including a polyhydroxy alcohol having not more than six carbon atoms and at

least three hydroxy groups, and an unsaturated carboxylic acid, a ratio in molecular weight of the main component of said crosslinking agent to a standard compound is not less than 0.7 and less than 1.3 based on a molecular weight of the standard compound wherein all hydroxy groups of the polyvalent alcohol are ester-linked to the unsaturated carboxylic acid, and said high-boiling point component includes at least two alcohol structures in a molecule". This corresponds to the conditions in the description on page 18, line 17 to page 19, line 13, page 20, line 14 to page 21, line 2 and page 25, lines 17-21, which specify which amount of crosslinking agent and which composition are meant on page 16, line 12 to page 17, line 1 and page 20, lines 7-13.

- 2.4 The cited passages therefore provide a basis for the specific combination of a crosslinking agent and a dispersant in the preparation of an absorbing agent precursor, only when the crosslinking agent is the one specified in claim 21 in the amount mentioned therein. Contrary to that, claim 1 covers absorbing agents including the use of any crosslinking agent in the preparation of an absorbing agent precursor and the presence of a dispersant in the absorbing agent without any limitation of it being present in the preparation of the precursor. While a more general disclosure is available in the original application for both features individually (see paragraph bridging pages 47 and 48 and claim 8), these citations do not provide basis for the two features in combination. In particular the paragraph bridging pages 47 and 48, which discloses the use in the preparation of an absorbing agent precursor of a more general crosslinking agent defined simply as

including "plural polymerizable unsaturated groups and plural reactive groups" (page 47, lines 18-20), concerns an alternative process of manufacturing an absorbing agent (as described from page 45, line 12 to page 52, line 55), in which a dispersant is not used. On the other hand, the disclosure of an absorbing agent containing a dispersant in original claim 8, which depends exclusively on original claim 1, does not make any reference to the presence of a crosslinking agent.

- 2.5 A further point concerns what is meant in the original application by "improved" diffusing absorbency of the absorbing agent, which is obtained by using the specific crosslinking agent in the specific amount and the dispersant during the preparation of the precursor (see in particular page 20, lines 7-13). While claim 1 has been limited to an absorbing agent with a diffusing absorbency under pressure after absorption has continued for 60 minutes of not less than 30 g/g, in the original application the problem of the invention is solved when the diffusing absorbency under pressure after absorption has continued for 60 minutes is not less than 25 g/g (see claim 1; page 8, lines 18-22; page 9, lines 3-9). The skilled person will derive from these passages the information that an improved absorbency under pressure in the context of the application is at least 25 g/g, but not necessarily anything more. Even if it is disclosed that a more preferred value is "of not less than 30 g/g" (see claim 6 and page 13, line 1), the whole of the application and in particular the examples show that values above 30 g/g can be obtained only under very specific conditions. In particular the paragraph bridging pages 32 and 33 discloses that "a still

improved" diffusing absorbency under pressure can be obtained when the heat treatment to which the absorbing agent precursor is submitted takes place in the presence of a surface crosslinking agent which is composed of a first surface crosslinking agent having a solubility parameter of more than  $12.5 \text{ (cal/cm}^3)^{1/2}$  and a second surface crosslinking agent having a solubility parameter of less than  $12.5 \text{ (cal/cm}^3)^{1/2}$  (see page 32, line 20 to page 34, line 4). In this context, the skilled person will understand that "still improved" refers to stricter and more preferred conditions on the diffusing absorbency under pressure, as supported by all examples in which a diffusing absorbency under pressure after absorption has continued for 60 minutes above 30 g/g is obtained only when the surface crosslinking agent is composed of the mentioned combination of two surface crosslinking agents (see in particular examples 7-9).

- 2.6 The fact that the original application included a claim concerning an absorbing agent with a diffusing absorbency under pressure after absorption has continued for 60 minutes of not less than 30 g/g (claim 6) and a claim concerning an absorbing agent with a water soluble component above 0 and not more than 7% by weight (claim 7) and that a similar disclosure was present in the description (see page 12, line 13 to page 13, line 2) does not support a claim relating to an absorbing agent which possesses the two properties in combination and is obtained by a method which includes the preparation of an absorbing agent precursor in the presence of a generic crosslinking agent and heat treatment of the precursor in the presence of a generic surface crosslinking agent,

wherein the absorbing agent generically contains a dispersant. On the contrary, the mentioned passages of the original application only provide support for an absorbing agent with a diffusing absorbency under pressure after absorption has continued for 60 minutes of not less than 30 g/g and a water soluble component above 0 and not more than 7% by weight in combination with specific features, including at least the preparation of an absorbing agent precursor in the presence of a dispersant and of a specific crosslinking agent in a specific amount and a heat treatment of the precursor in the presence of a specific surface crosslinking agent.

- 2.7 For these reasons, the combination of features of claim 1 of the new main request contains subject-matter which extends beyond the content of the application as filed, so that the new main request does not meet the requirements of Article 123(2) EPC.

*New first auxiliary request*

3. *Amendments*

- 3.1 Claim 1 of the new first auxiliary request is identical to claim 1 of the new main request and therefore the first auxiliary request does not meet the requirements of Article 123(2) EPC for the same reasons as in points 2.1-2.6 above.



*New second auxiliary request*

4. *Amendments*

4.1 Claim 1 of the new second auxiliary request differs from claim 1 of the new main request in that an upper limit of "not more than 34 g/g" for the diffusing absorbency under pressure has been added.

4.2 The addition of this further feature has no impact on any of the arguments which justify the objection under Article 123(2) EPC to claim 1 of the new main request, so that also the new second auxiliary request does not meet the requirements of Article 123(2) EPC for the reasons in points 2.1-2.6 above. Since the additional feature was taken from an example of the original application (example 8), this feature could also be open to objection under Article 123(2) EPC. However, as the new second auxiliary request already does not meet the requirements of Article 123(2) EPC for other reasons, the question of the basis for the introduction of an upper limit for the diffusing absorbency under pressure taken from an example can be left unanswered.

5. Since none of the requests on file meets the requirements of Article 123(2) EPC, there is no need for the Board to take a position on the grounds of opposition under Article 100(b) EPC relating to insufficiency of disclosure, on which the contested decision based the revocation of the patent.

**Order**

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

The appeal is dismissed.

The Registrar

The Chairman

C. Eickhoff

S. Perryman