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- (A) [ - ] Publication in OJ
- (B) [ - ] To Chairmen and Members
- (C) [ - ] To Chairmen
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**Datasheet for the decision  
of 1 March 2017**

**Case Number:** T 0153/14 - 3.3.03

**Application Number:** 06811261.4

**Publication Number:** 1940948

**IPC:** C08L33/02, C08K3/36, C08K5/00

**Language of the proceedings:** EN

**Title of invention:**  
WATER-ABSORBENT AGENT COMPOSITION AND METHOD FOR MANUFACTURING  
SAME

**Patent Proprietor:**  
Nippon Shokubai Co., Ltd.

**Opponent:**  
BASF SE

**Headword:**

**Relevant legal provisions:**  
EPC Art. 100(b), 56  
RPBA Art. 12(4), 13(1)

**Keyword:**

Grounds for opposition - insufficiency of disclosure (main request: yes)

Late-filed request - admitted (auxiliary requests A-C: no; auxiliary requests D, 29 and 30: yes)

Inventive step (auxiliary request D: yes)

**Decisions cited:**

T 0035/85, T 0197/86

**Catchword:**



**Beschwerdekammern**  
**Boards of Appeal**  
**Chambres de recours**

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Case Number: T 0153/14 - 3.3.03

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.03**  
**of 1 March 2017**

**Appellant:** BASF SE  
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**Decision under appeal:** **Decision of the Opposition Division of the European Patent Office posted on 11 November 2013 rejecting the opposition filed against European patent No. 1940948 pursuant to Article 101(2) EPC.**

**Composition of the Board:**

**Chairman** D. Semino  
**Members:** O. Dury  
R. Cramer

## Summary of Facts and Submissions

I. The appeal by the opponent lies from the decision of the opposition division rejecting the opposition lodged against European patent EP 1 940 948.

II. The patent was granted on the basis of 10 claims, of which claims 1 to 3, 6 and 10 read as follows:

"1. A water-absorbent agent composition containing as a main component a polycarboxylic acid water-absorbent agent having a crosslinking structure which is produced by polymerizing an acid-group-containing unsaturated monomer, the water-absorbent agent composition containing water-insoluble organic or inorganic fine particles, the water-absorbent agent composition satisfying the following set of conditions (a) through (e):

(a) decreasing rate of a liquid distribution velocity (LDV) is not more than 30%;

(b) saline flow conductivity (SFC) is not less than 60 (Unit:  $10^{-7}\text{cm}^3\cdot\text{s/g}$ );

(c) mass average particle diameter (D50) is 200 to 420  $\mu\text{m}$ ;

(d) logarithm standard deviation ( $\sigma\zeta$ ) of particle size distribution is 0.25 to 0.40;

(e) percentage of particles less than 150  $\mu\text{m}$  in diameter is not more than 3 mass % with respect to the whole particle amount."

"2. The water-absorbent agent composition as set forth in claim 1, wherein:

a liquid distribution velocity (LDV) of the water-absorbent agent composition before a liquid distribution velocity resistance test is not less than 2.0mm/s."

"3. A water-absorbent agent composition containing as a main component a polycarboxylic acid water-absorbent agent'[sic] having a crosslinking structure which is produced by polymerizing an acid-group-containing unsaturated monomer, the water-absorbent agent composition containing water-insoluble organic or inorganic fine particles, the water-absorbent agent composition satisfying the following set of conditions (a') through (d'):

(a') content [sic] of particles 300 to 600  $\mu\text{m}$  in diameter is not less than 30 mass %

(b') average gap radius index under no pressure is less than 310  $\mu\text{m}$

(c') a liquid distribution velocity (LDV: measured before the LDV resistance test) is not less than 2.0mm/s

(d') saline flow conductivity - (SFC) is not less than 30 (Unit:  $10^{-7}\text{cm}^3 \times \text{s} \times \text{g}^{-1}$ )."

"6. The water-absorbent agent composition as set forth in any one of claims 1 through 5, wherein:

a liquid distribution velocity (LDV) of the water-absorbent agent composition before a liquid

distribution velocity resistance test is not less than 1.3mm/s."

"10. A method for producing a water-absorbent agent composition, comprising the step of:

(a) carrying out crosslinking polymerization on an unsaturated monomer solution constituted of a monomer containing as a main component an acrylic acid and/or its salt in the presence of an internal crosslinking agent so as to produce a crosslinked polymer, the method further comprising the steps of:

(b) drying the crosslinked polymer, adjusting the particle size of the crosslinked polymer, and carrying out another crosslinking with respect to a vicinity of the surface of each particle of the crosslinked polymer so as to obtain a water-absorbent agent which satisfy the following set of conditions (i) through (iv):

(i) mass average particle diameter (D50) is 200 to 500  $\mu\text{m}$ ;

(ii) percentage of particles less than 150  $\mu\text{m}$  in diameter is not more than 5 mass % with respect to the whole particle amount;

(iii) logarithm standard deviation ( $\sigma\zeta$ ) of particle size distribution is 0.25 to 0.45;

(iv) saline flow conductivity (SFC) is not less than 30 (Unit:  $10^{-7}\text{cm}^3 \times \text{S} \times \text{g}^{-1}$ ); and

(c) mixing the water-absorbent agent with water-insoluble organic or inorganic fine particles 1 to 100nm in average particle diameter, wherein:

the water-absorbent agent is mixed with the water-insoluble organic or inorganic fine particles in the form of a slurry 0.1 to 50 mass % in solid content."

- III. A notice of opposition to the patent was filed requesting revocation of the patent in its entirety.
- IV. In the contested decision the following documents were *inter alia* cited:

D1: WO 2004/069915  
D2: WO 01/25290  
D3a: English translation of JP 06-016822  
D5: EP 1 512 712

In that decision the opposition division held that neither the ground of opposition pursuant to Article 100(b) EPC nor those pursuant to Article 100(a) EPC in combination with both Article 54 EPC and Article 56 EPC prejudiced the maintenance of the patent. In particular, the subject-matter of the granted claims was held to be novel over example 19 of D1 and to be inventive starting from D1 as closest prior art, in particular example 19 thereof, either alone or in combination with either D3a or D5.

- V. The opponent (appellant) lodged an appeal against the above decision and requested that the decision of the opposition division be set aside and the patent be revoked. Together with its statement of grounds of appeal the following documents were filed:

D6: WO 2004/037903  
D7: Experimental report related to example 19 of D1 and dated 21 March 2014  
D8: Experimental report related to D6 and dated

20 March 2014

VI. In the reply to the statement of grounds of appeal dated 6 October 2014 the patent proprietor (respondent) requested that the the appeal be dismissed (main request) or, alternatively, that the patent be maintained in amended form according to any of auxiliary requests 1-30 filed therewith. It was further requested that D6, D7 and D8 not be admitted to the proceedings.

Each of auxiliary requests 1-28 contained a claim 1 and a claim 3 corresponding to granted claims 1 and 3, respectively, each of those claims being amended by the addition of one or more parameter(s).

Each of auxiliary requests 29 and 30 consisted in a single claim based on granted claim 10 and amended by the addition/modification of various features, the details of which are not relevant to the present decision.

VII. With letter of 8 October 2014 the respondent further filed:

D10: Affidavit of Mr. Ishizaki related to  
example 19 of D1

VIII. With letter of 19 July 2016 the appellant requested that auxiliary requests 1-30 not be admitted to the proceedings and filed:

D7a: Correction related to D7 and dated  
15 July 2016

D9: Experimental report related to D6 and dated



31 May 2016

- IX. In a communication issued by the Board on 9 December 2016, issues to be discussed at the oral proceedings were specified. The following points were *inter alia* indicated:
- It was questioned whether the patent in suit provided sufficient information in order to prepare reliably, without undue burden and with a good chance of success, products according to granted claim 3 (point 5.3);
  - The question arose why D6 was only submitted at the stage of the appeal proceedings (point 4.4);
  - It was explained why the arguments on lack of novelty of granted claim 10 over D6 based on the rework in D8 appeared to be doubtful (point 6.3).
- X. With letter of 20 January 2017 the respondent maintained the main request as well as each of auxiliary requests 1-30 and requested that D7a and D9 not be admitted to the proceedings. Additional experimental data were further submitted (Table on page 8 of said letter; hereinafter referred to as D11).
- XI. Oral proceedings were held on 1 March 2017 in the presence of both parties. During the oral proceedings, the respondent withdrew each of auxiliary requests 1-28 filed with letter of 6 October 2014 and submitted new auxiliary requests A to D. At the end of the oral proceedings the requests maintained by the respondent were as follows (in that order): patent as granted (main request), auxiliary requests A to D filed during the oral proceedings, auxiliary requests 29 and 30

filed with letter of 6 October 2014.

Auxiliary request A (9 claims) corresponded to the main request (granted patent) in which claim 3 was deleted and the following claims renumbered accordingly.

Auxiliary request B (8 claims) corresponded to the main request in which claims 2 and 3 were deleted and the following claims renumbered accordingly.

Auxiliary request C (7 claims) corresponded to the main request in which claims 2, 3 and 6 were deleted and the remaining claims renumbered accordingly.

Auxiliary request D (1 claim) consisted in granted claim 10.

XII. The appellant's arguments, as far as relevant to the present decision, were essentially as follows:

**Main request**

(a) Claim 3 - Sufficiency of disclosure

Examples 3, 4, 10 and 11 of the patent in suit were all performed according to the teaching of the patent in suit but led to products which were not according to claim 3, in particular because they did not satisfy feature (c'). The patent in suit did not contain any information as to what would have to be modified in those examples in order to reliably obtain a product according to claim 3. Example 12 of the patent in suit was not in line with the respondent's argumentation according to which examples 3, 4, 10 and 11 failed because they had been performed with a water-absorbent agent

having a large content of fine particles and a low content of particles in the size range of 300 to 600  $\mu\text{m}$ . Therefore, although the patent in suit contained some isolated examples illustrating how to prepare products according to claim 3 it failed to provide a concept fit for generalisation.

**Auxiliary requests A to D - Admittance**

(b) Auxiliary requests A and B were filed at a very late stage of the proceedings. Although the issue of lack of sufficiency of granted claim 3 had been substantiated in the statement of grounds of appeal and had been clearly identified as a pertinent objection in the Board's communication, the respondent had in its reply to said communication explicitly maintained each of auxiliary requests 1-28 containing claims based on granted claims 1 and 3, which showed that the respondent had little interest in maintaining granted claim 1 only. The appellant had, thus, no reason to expect that such requests be filed at the oral proceedings.

In addition, auxiliary requests A and B contained claims identical to or based on granted claims 2 and 6 i.e. comprising the same feature (c') according to granted claim 3. Therefore, those requests could not remove the objection of lack of disclosure retained against the main request.

Auxiliary request C was filed even later than auxiliary requests A and B and it was submitted after many other attempts to solve the sufficiency issue which had been on file since the beginning of the opposition proceedings. There was no reason for

filing auxiliary request C so late and this was an abuse of the proceedings.

For those reasons, auxiliary requests A, B and C should not be admitted to the proceedings.

**Documents filed in appeal - Admittance**

(c) Document D6 was filed right at the beginning of the appeal proceedings. The admittance of D8, D9 and D11, which were all related to the issue whether or not some features defined in the granted claims were implicitly disclosed in D6, directly depended on that of D6.

D7, completed by D7a, had been filed as soon as possible in response to the opposition division's conclusion regarding novelty over D1.

Therefore, all those documents should be admitted to the proceedings.

**Auxiliary request D - Inventive step**

(d) The closest prior art was example 19 of D1.

The subject-matter of claim 1 differed therefrom in that the water-absorbent agent and the fine particles were mixed in step (c) in the form of a slurry whereas example 19 of D1 comprised a dry blending of the water-absorbent agent and the fine particles.

No comparison between a method according to claim 1 and the one of example 19 of D1 was on file. The examples and comparative examples of the patent in

suit could not be fairly compared with each other because they did not differ only in the above indicated distinguishing feature (mixing in a slurry vs. dry blending). In particular they also differed in the size of the water insoluble fine particles and in the water content of the water-absorbent agent composition, which had an impact on the mechanical properties of the water absorbent composition as could be derived from the patent in suit itself or from D2. Therefore, the technical problem effectively solved could only reside in the provision of a further method for producing a water-absorbent agent composition as alternative to the one of example 19 of D1.

Considering that D3a disclosed the preparation of a water-absorbent agent composition comprising mixing the water-absorbent agent with water insoluble fine particles in the form of a slurry, it was obvious to solve the above problem by combining the teachings of D1 and D3a or by applying both processes one after the other.

XIII. The respondent's arguments, as far as relevant to the present decision, may be summarised as follows:

**Main request**

(a) Claim 3 - Sufficiency of disclosure

It was derivable from the patent in suit as a whole that the particle size distribution of the water-absorbent agent played a crucial role in the achievement of the water-absorbent agent compositions satisfying features (a') to (d') specified in claim 3. In particular the content of

particles less than 150 µm in diameter and/or of particles 300 to 600 µm in diameter was important, as could be derived from the fact that those features were specified in claims 3 (feature (a')) and 10 (feature (ii)). Examples 3, 4, 10 and 11 of the patent in suit (not according to claim 3) were all performed using the same water-absorbent material A2, which differed from the water-absorbent material A1 used in example 1 (according to claim 3) precisely in the fact that it had a larger content of fine particles and a lower content of particles in the size range of 300 to 600 µm. Therefore, in order to fulfill the requirements of claim 3, examples 3, 4, 10 and 11 of the patent in suit should be modified by using an agent A1 instead of A2. In that respect, example 12 differed from examples 1, 3, 4 and 10-11 in that the water-absorbing agent prepared therein was crushed twice with the roll mill, which was not the case for the other examples. Thus, example 12 could not be compared with the other examples.

**Auxiliary requests A to C - Admittance**

(b) Auxiliary requests A to C were filed to overcome the objection of lack of sufficiency retained against granted claim 3. The respondent was convinced that said objection, which had not convinced the opposition division, would not succeed. Besides, filing in reply to the Board's communication an additional set of 30 auxiliary requests not containing granted claim 3 would not have been an efficient conduct of the proceedings: considering that the objection could easily be overcome by deleting a single independent claim, it had been considered that it would be more efficient

to do so during the oral proceedings, if required.

The respondent did not know why the main request was held not to satisfy the requirements of sufficiency of disclosure. Therefore, there was no reason to expect that an objection would be raised against granted claims 2 and/or 6, which was done for the first time during the oral proceedings before the Board. The respondent should be given a chance to overcome said late-filed objection.

In auxiliary request C, all the claims objected to as lacking sufficient disclosure for the same reason as for the main request were deleted.

For those reasons, auxiliary requests A to C should be admitted to the proceedings.

**Documents filed in appeal - Admittance**

(c) D6 should have been submitted earlier in the proceedings. The appellant had not provided any justification for filing the document only in appeal. It was further agreed with the appellant that the admittance of D8 and D9 depended on that of D6.

D7 and D7a should have been filed during the opposition proceedings. They were not *prima facie* pertinent since they did not constitute a fair rework of example 19 of D1.

D10 and D11 were both related to the issue whether or not some features defined in the granted claims were implicitly disclosed in D6 and they had been filed in reply to the appellant's arguments filed

for the first time in appeal.

Therefore, D6, D7, D7a, D8 and D9 should not be admitted to the proceedings.

**Auxiliary request D - Admittance**

- (d) Auxiliary request D was submitted during the oral proceedings in order to ensure that the objections pursuant to Article 123(2) EPC raised against auxiliary requests 29 and 30 be overcome. It should be admitted to the proceedings because it allowed a more efficient conduct of the proceedings.

**Auxiliary request D - Inventive step**

- (e) The method according to claim 1 differed from the closest prior art represented by example 19 of D1 in that the water-absorbent agent and the water insoluble particles were mixed in step (c) in the form of a slurry whereas example 19 of D1 comprised a dry blending thereof. Besides, the water insoluble particles used in D1 had a diameter which was much larger than 100 nm as defined in step (c) of claim 1.

Comparative examples 1 and 2 of the patent in suit represented embodiments lying closer to the subject-matter claimed than the method according to example 19 of D1. The comparison of examples 1 and 3 with comparative examples 1 and 2 of the patent in suit, respectively, showed that a method of preparation of a water-absorbent agent composition according to claim 1 and comprising a mixing step in a slurry according to feature (c) instead of a dry mixing led to water-absorbent agent



compositions having improved Liquid Distribution Velocity (LDV) decreasing rate. Therefore, the problem effectively solved was that of providing a water-absorbent agent composition having improved storage and handling stability.

According to D1, the water insoluble particles should be such as to widen the gaps between the water-absorbent particles, which meant that they should have a diameter in the range of micrometers and not of 1 to 100 nm as defined in claim 1. Therefore, D1 neither disclosed water insoluble particles according to claim 1 nor taught using such small particles. To the contrary, D1 taught away from using such small particles.

D3a taught to use small particles for increasing the liquid permeability, which was in contrast to the teaching of D1. Besides, D3a did not address the problem of providing a water-absorbent agent composition having improved storage and handling stability. Also, the method of mixing in a slurry according to D3a was not compatible with the dry blending carried out in example 19 of D1. There was further no good reason to perform both processes one after the other and, even if it were to be done, there was no indication how one would have to proceed. Therefore, the combination of D3a and D1 was not obvious, in particular not in view of solving the problem identified above.

XIV. The appellant requested that the decision under appeal be set aside and that the patent be revoked.

The respondent requested that the appeal be dismissed or, in the alternative, that the patent be maintained

in amended form according to any of auxiliary requests A, B, C or D filed during the oral proceedings, or according to one of auxiliary requests 29 or 30 filed with letter of 6 October 2014.

## **Reasons for the Decision**

### **Main request (patent as granted)**

1. Sufficiency of disclosure
  - 1.1 In order to meet the requirement of sufficiency, an invention has to be disclosed in a manner sufficiently clear and complete for it to be carried out by the skilled person in the whole area claimed without undue burden, on the basis of the information provided in the patent specification and, if necessary, using common general knowledge. This means in the present case that the skilled person should in particular be capable to prepare a water-absorbent agent composition according to independent claim 3, which was disputed by the appellant.
  - 1.2 Regarding the preparation of the products according to claim 3, information is provided in the patent in suit regarding:
    - the nature and the preparation of the crosslinked water-absorbing agent (paragraphs 29-79). According to paragraph 47, crosslinking is carried out in two steps using both an internal and a surface crosslinking agent, the latter being further detailed in paragraphs 60-64;

- the nature of the water-insoluble particles (paragraphs 80-94). It is indicated that the average particle diameter is not particularly limited (paragraph 84). Also, it is specified that those particles are preferably processed in a slurry form (paragraph 90), which is taught to let the inorganic particles enter into the water-absorbent agent (paragraphs 19-22). However, a dry blending may also be used (paragraph 88);
  
- the preparation process of the water-absorbing agent (paragraphs 95-101). It is further acknowledged in paragraph 100 that a preparation process according to claim 10, which is more specific than that indicated in paragraph 96, may preferably be used.

1.3 It was not disputed by the parties that examples 3, 4, 10 and 11 are all performed according to the teaching of the patent in suit (in particular claim 10 and paragraph 17) but lead to products which are not according to claim 3, in particular because the products prepared therein do not satisfy the requirement in terms of LDV according to feature (c') of claim 3 (Tables 3 and 6 of the patent in suit). Therefore, in view of those examples 3, 4, 10 and 11, the question arises if the general teaching of the patent in suit provides sufficient information for the skilled person to prepare reliably, without undue burden and with a good chance of success, a water-absorbent agent composition as defined in claim 3.

1.4 The respondent argued that it was derivable from the patent in suit as a whole that the particle size distribution of the water-absorbent agent played a role. Considering that both the content of particles

less than 150  $\mu\text{m}$  in diameter and of particles 300 to 600  $\mu\text{m}$  in diameter of the water-absorbent agent used in examples 3, 4, 10 and 11 were different from those used in the examples of the patent in suit illustrating the subject-matter of claim 3, the skilled person knew what had to be changed to turn a fail into a success, namely to use a water-absorbent agent A1 instead of A2.

It is correct that it is explicitly indicated in the patent in suit that the particle size of the water-absorbent agent (features (i) to (iii) of granted claim 10) and of the water-absorbent agent composition (features (a') and (b') of granted claim 3) have an impact on the properties of the water-absorbent composition (see e.g. paragraphs 100-103). That statement is confirmed by the examples of the patent in suit carried out using different water-absorbent agents such as A1, A2 and A4 having different particle size distributions (see Table 1 for the particle size distribution of the water-absorbent agent and Tables 3 and 6 for the properties of the water-absorbent agent compositions prepared therewith). However, each of the water-absorbing agents A1, A2 and A4 fulfil the features which are taught in the patent in suit as being determinant, in particular the requirements in terms of particle size indicated in paragraphs 48, 58 and 59 or in claims 3 and 10 (see Table 2 of the patent in suit).

Besides, if it may be agreed with the respondent that the water-absorbent agent A2 (used in examples 3, 4, 10 and 11, all not according to claim 3) contains a larger content of particles less than 150  $\mu\text{m}$  in diameter and a lower content of particles in the size range of 300 to 600  $\mu\text{m}$  than agent A1 (used in example 1 according to claim 3), water-absorbent agent A4 contains even more

particles less than 150 µm in diameter and even less content of particles in the size range of 300 to 600 µm than agent A2. Therefore, should the respondent's argument be correct, it would be expected that a water-absorbent agent composition prepared with water-absorbent agent A4 is even less appropriate to lead to products according to granted claim 3 than a composition prepared with agent A2. However, this is not the case as shown by example 12.

It is true that, as argued by the respondent, whereas example 12 was carried out with water absorbent agent A4 which was crushed twice with a roll mill (paragraph 221, line 53), examples 1, 3, 4, 10 and 11 were performed with either water agent A1 or A2 which were only crushed once (paragraph 218, line 30 and paragraph 219, line 38). However, the patent in suit contains no limitations regarding the crushing of the water absorbent agent. Besides, such a crushing step directly affects the particle size distribution of the water absorbent agent and, as explained above, each of agents A1, A2 and A4 fulfills the requirements in terms of particle size distribution taught in the patent in suit to be important. Therefore, the fact that agent A4 was crushed twice does not affect the above considerations, contrary to the respondent's view.

For those reasons, it cannot be concluded that it was shown which measures (apart from using specifically a water-absorbent agent A1 instead of A2) should be taken to modify examples 3, 4, 10 or 11 of the patent in suit in order to arrive successfully at a composition according to claim 3, in particular a composition fulfilling feature (c') while maintaining the other features (a'), (b') and (d') within the ranges

indicated in claim 3.

- 1.5 It is further noted that it was neither argued nor shown that those measures are known in the art.
- 1.6 In view of the above, it is concluded that although the examples of the patent in suit show that some water-absorbent agent compositions according to claim 3 may be prepared using e.g. a water-absorbent agent such as A1 or A4, they do not provide sufficient information on how to proceed in order to prepare, in a reliable way, other water-absorbent agent compositions according to claim 3 using different agents than A1 or A4.
- 1.7 Under these circumstances, the skilled person wanting to prepare a water-absorbent agent composition according to claim 3 is left with the task of performing an elaborate program in order to find out appropriate water-absorbent agents and can only establish by trial and error whether or not his particular choice will provide the combination of features (a') to (d') required by claim 3, in particular feature (c'), which amounts to an undue burden. For that reason, the main request does not satisfy the requirements of sufficiency of disclosure and is, therefore, not allowable (Article 100(b) EPC).

**Auxiliary requests A to C**

2. Admittance
- 2.1 Since auxiliary requests A to C were filed during the oral proceedings before the Board, their admittance to the proceedings underlies the stipulations of Article 13(1) and (3) RPBA.

2.2 Auxiliary request A corresponds to the main request in which claim 3 was deleted and the following claims renumbered accordingly.

2.2.1 According to the case law, it is a matter for each party himself to submit all facts, evidence, arguments and requests relevant for the enforcement or defence of his rights as early and completely as possible, in particular in *inter partes* proceedings in order to act fairly towards the other party and, more generally, to ensure due and swift conduct of the proceedings (Case Law of the Boards of Appeal of the EPO, 8th edition, 2016, IV.E.4.1.2 and 4.1.4).

In the present case, although it may be accepted that auxiliary request A was filed as an attempt to overcome the objection of lack of sufficient disclosure retained against claim 3 of the main request, it is conspicuous that said objection had been raised already in the appellant's statement of grounds of appeal and that it had been indicated in the Board's communication that said objection appeared to be pertinent. However, although a large number of auxiliary requests (30) was filed in reply to the statement of grounds of appeal and explicitly maintained in reply to the Board's communication, none of those requests contained sets of claims based only on granted independent claims 1 and 10, i.e. none of those requests was directed to subject-matter in which claims based on granted independent claim 3 were deleted as in auxiliary request A.

In that respect, it was explicitly indicated in the Board's communication following arguments which were fully developed in the statement of grounds of appeal that the reason why it was questionable that granted

claim 3 fulfilled the requirements of sufficiency of disclosure was because examples 3, 4, 10 and 11 were carried out according to the teaching of the patent in suit but did not lead to products according to granted claim 3 (first paragraph of section 5.3). It was also indicated that examples 3, 4, 10 and 11 of the patent in suit were not according to granted claim 3 because they did not fulfil feature (c') (section 5.2; last two lines on page 4). Under those circumstances, the respondent cannot have been taken by surprise by the Board's conclusion regarding the lack of sufficiency of disclosure of granted claim 3 and, should the respondent have been interested in defending a set of claims containing product claims based on granted claim 1 as sole independent product claim, it should have indicated it early enough in the proceedings, in particular in the written stage, in order both to act fairly towards the appellant and to ensure an efficient conduct of the proceedings.

In view of the above, there is no reason justifying the filing of auxiliary request A at such a late stage of the proceedings.

- 2.2.2 Moreover, auxiliary request A still contains further claims (claims 2 and 5) specifying the feature of granted claim 3 (feature c') which has led to the lack of sufficiency of disclosure, so that it is highly questionable whether it is suitable to overcome the objection.
- 2.2.3 Under such circumstances, the Board finds it appropriate to exercise its discretion under Article 13(1) RPBA by not admitting auxiliary request A into the proceedings.



2.3 Auxiliary requests B and C were filed by the respondent at the oral proceedings after the Board had announced its decision not to admit auxiliary request A into the proceedings as further attempts to overcome the objection of lack of sufficiency. Independently of their success in overcoming the objection, the Board considers a piecemeal filing of auxiliary requests during the oral proceedings and after a further contrary decision has been announced in a case where the relevant objections were known from the very beginning of the appeal proceedings and a very large number of requests had been filed an abuse of procedure of the respondent. Admitting auxiliary requests B and C at such a late stage would not only run counter to the economy of the proceedings, but would also be an unfair treatment of the appellant. For those reasons, the Board finds it appropriate to exercise its discretion under Article 13(1) RPBA by not admitting auxiliary requests B and C into the proceedings.

**Auxiliary request D**

3. Admittance

3.1 Considering that auxiliary request D was filed during the oral proceedings before the Board, its admittance to the proceedings underlies the stipulations of Article 13(1) and (3) RPBA.

3.2 As may be seen from the minutes of the oral proceedings before the Board, auxiliary request D was submitted by the respondent

- after the Board had informed the parties that it saw no reason not to admit auxiliary requests 29 and 30 (in that respect, it was not disputed that auxiliary requests 29 and 30 had been filed

pursuant to Article 12(1) and (2) RPBA and, in the absence of any substantive objections against the admittance of these requests by the appellant, as clarified during the oral proceedings before the Board, there was no reason for the Board not to admit those requests to the proceedings pursuant to Article 12(4) RPBA); and

- after the discussion whether or not auxiliary requests 29 and 30 fulfilled the requirements of Article 123(2) EPC and Article 56 EPC had taken place.

3.3 In that respect it is to be noted that objections pursuant to Article 123(2) EPC against auxiliary requests 29 and 30 were raised by the appellant for the first time during the oral proceedings (as may be seen from page 8 of the appellant's letter dated 19 July 2016, auxiliary requests 29 and 30 were only objected to in writing as lacking an inventive step). Therefore, the respondent was confronted for the first time during the oral proceedings before the Board with the appellant's objection pursuant to Article 123(2) EPC raised against the method claims based on granted claim 10, so that the submission of auxiliary request D is seen as an attempt to overcome said objections, which could not have been made earlier.

3.4 Besides, it is further noted that auxiliary request D was not objected to pursuant to Article 123(2) EPC and that both parties declared that their argumentation in terms of inventive step was identical in respect of each of auxiliary requests 29, 30 and D. Therefore, admitting auxiliary request D to the proceedings does not extend the scope of discussion as compared to auxiliary requests 29 and 30 (in particular in respect

of inventive step) and, since it renders moot the objections pursuant to Article 123(2) EPC raised against said auxiliary requests 29 and 30, it also satisfies the need for procedural economy. Moreover, the appellant had no objection to the admission of auxiliary request D.

3.5 For those reasons, the Board finds it appropriate to exercise its discretion under Article 13(1) RPBA by admitting auxiliary request D into the proceedings.

4. Admittance of late filed documents

4.1 D6 is a WO application published in 2004, which belongs to the same technical field and deals with the same problems as the patent in suit (D6: see e.g. title, pages 1-2 and 5-6, examples). No justification was provided why D6 was only provided at the appeal stage, namely together with the appellant's statement of grounds of appeal, in particular not in reply to the Board's communication in which said issue was identified. No argument was further provided why D6 would be *prima facie* highly relevant, in particular not in reply to the Board's preliminary opinion in respect of the novelty objection put forward against granted claim 10 in view of comparative example 3 of D6 (see section IX above). The Board does not consider the document as more relevant than the documents already on file, as confirmed by the several further documents filed to show whether or not features not explicitly disclosed therein could be seen as implicitly disclosed. Moreover, the document cannot be seen as a reaction to the decision. Under such circumstances, if the appellant intended to have this document in the proceedings, he should have filed it at the appropriate time in first instance proceedings. Therefore, D6 is

not admitted to the proceedings (Article 12(4) RPBA).

4.2 D8, D9 and D11 are all related to the issue whether or not some features defined in the granted claims are implicitly disclosed in D6. Since D6 is not admitted, D8, D9 and D11 share the same fate and are also not admitted to the proceedings (Article 12(4) RPBA).

4.3 D7 is a rework of example 19 of D1, which was filed in order to overcome the opposition division's conclusion that it had not been shown that example 19 of D1 satisfied feature (a) according to claim 1 (section 4.1 of the decision under appeal). D7 was filed together with the appellant's statement of grounds of appeal pursuant to Article 12(1) and (2) RPBA. Under those circumstances, there was no reason for the Board not to admit D7 to the proceedings pursuant to Article 12(4) RPBA.

D10 also deals with a rework of example 19 of D1, which was filed by the respondent in order to show that D7 was not a fair rework of example 19 of D1. D10 was announced with the respondent's reply to the appellant's statement of grounds of appeal dated 6 October 2014 and filed directly afterwards with a letter dated 8 October 2014, i.e. pursuant to Article 12(1) and (2) RPBA. Therefore, there was also no reason for the Board not to admit D10 to the proceedings pursuant to Article 12(4) RPBA.

D7a was filed by the appellant with letter of 19 July 2016 in response to the respondent's first reply to the statement of grounds of appeal. It is an affidavit in which it is stated that D7 contained an error regarding the temperature of the surface treatment. D7a is therefore relevant to both D7 and to

the respondent's objection based on D10 and is admitted to the proceedings (Article 13(1) RPBA).

5. No objection of lack of sufficiency was raised against auxiliary request D. Also, the sole novelty objection submitted in writing against granted claim 10, which corresponds to claim 1 of auxiliary request D, was based on comparative example 3 of D6 (see page 8 of the statement of grounds of appeal). Since D6 is not admitted to the proceedings, said objection is moot.

6. Inventive step

6.1 Closest prior art

D1 deals, as the patent in suit, with a water-absorbing agent which combines both performances of the capillary suction force and the liquid permeability (paragraphs 1 and 11 of the patent in suit; D1: page 1, lines 6-12; page 7, lines 16-18). The water-absorbing agent of D1 is a particulate water-absorbing agent comprising water-absorbent resin particles ( $\alpha$ ) and a liquid-permeability-enhancing agent ( $\beta$ ), wherein the water-absorbent resin particles ( $\alpha$ ) are surface-crosslink-treated particles of a crosslinked polymer of a monomer including acrylic acid and/or its salt, with the water-absorbing agent being characterized in that the particulate water-absorbing agent has: a mass-average particle diameter (D50) in the range of 234 to 394  $\mu\text{m}$ , a logarithmic standard deviation ( $\sigma_z$ ) of a particle diameter distribution in the range of 0.25 to 0.45, an absorption capacity without load (CRC) of not less than 15 g/g, and a water-extractable component content of not higher than 15 mass %; and further a liquid-permeability-enhancing agent ( $\beta$ ) content in the range of 0.01 to 5 mass parts per 100

mass parts of the water-absorbent resin particles ( $\alpha$ ) (D1: claim 1).

Example 19 of D1 deals with the preparation of a water-absorbent agent D15-19A10 in powdery form, which is prepared by mixing water-absorbent resin particles C15-15A10 as water-absorbent resin particles ( $\alpha$ ) and 1.5 mass parts of particles Sipernat 2200 as liquid-permeability-enhancing agent ( $\beta$ ).

Both parties, as well as the opposition division, considered D1, in particular example 19 thereof, as a suitable starting point for the assessment of the inventive step. The Board sees no reason to depart from that view.

## 6.2 Distinguishing features

6.2.1 Example 19 of D1 is carried out by dry blending of the water-absorbent resin particles C15-15A10 and the water insoluble particles Sipernat 2200 and not by mixing in the form of a slurry according to feature (c) of operative claim 1.

Besides, Sipernat 2200, which is used in example 19 of D1 as liquid-permeability-enhancing agent ( $\beta$ ), is a hydrophilic amorphous silica (D1: page 34, lines 4-6) corresponding to the water-insoluble particles specified in feature (c) of operative claim 1. The respondent declared that Sipernat 2200 has a particle size of 320  $\mu\text{m}$  (letter of 6 October 2014: page 2, section a)), which was not contested by the appellant. No other information on the particle size of Sipernat 2200 is available on file. Therefore, the subject-matter of claim 1 differs also from example 19 of D1 in that the average particle size of the water

insoluble particles indicated in step (c) is significantly smaller, namely 1 to 100 nm.

6.2.2 The appellant argued that features (a), (b) and (i) to (iv) of claim 1 were all satisfied by the method used in example 19 of D1, which was not contested by the respondent. The Board has no reason to deviate from that view in particular in view of the following:

- In example 19 of D1, the resin particles C15-15A10 are prepared according to examples 15 and 4 of D1, which comprises a first crosslinking step according to feature (a) of claim 1 (D1: pages 57-58: polymerisation step (1) of example 4);
- The crosslinked polymer is dried, pulverised and classified (whereby particles with a diameter smaller than 150 µm are eliminated), and surface crosslinked (D1: pages 58-59: end of step (1) and steps (2) to (5) of example 4).
- Indications related to features corresponding to features (i)-(iv) of operative claim 1 are given at page 37, line 23, page 38, lines 8-10, page 22, lines 7-10, page 65, lines 12-22 of D1.

6.2.3 In view of the above, the subject-matter of claim 1 differs from that of example 19 of D1 in that

- The water-insoluble fine particles must have an average particle diameter of 1 to 100 nm;
- The water-absorbent agent and the water-insoluble fine particles are added in the form of a slurry.

- 6.3 Defining the problem solved in view of the closest prior art
- 6.3.1 The respondent argued that the problem to be solved over example 19 of D1 was that of providing a water-absorbent agent composition having improved storage and handling stability, which was derivable from paragraphs 11-21 of the patent in suit. In that respect, the storage and handling stability is a property characterised in the patent in suit by determining the Liquid Distribution Velocity decreasing rate (LDV decreasing rate) as described in paragraphs 195-199. According to paragraph 14 of the patent in suit the LDV decreasing rate is a parameter indicating whether or not the liquid updrawing property easily decreases with environmental changes due to, for example, inappropriate storage or process damages i.e. it is an indicator of storage and handling stability.
- 6.3.2 It was not disputed that no comparison with a product according to the closest prior art (example 19 of D1) is on file.
- 6.4 Considering that comparative examples 1 and 2 of the patent in suit in particular differ from each of examples 1 and 3, respectively, in that the water insoluble particles and the water-absorbent polymer are dry blended instead of being added in a slurry, the question arises if those comparative examples may be considered as representing embodiments lying closer to the subject-matter claimed than a product/process according to D1, i.e. whether it may be considered that the advantageous effect attributable to the feature distinguishing the claimed subject-matter from the closest prior art is in fact more clearly demonstrated (T 35/85 of 16 December 1986, point 4;



T 197/86 of 4 February 1988, point 6.1.3).

6.5 Although it was not disputed that comparative examples 1 and 2 of the patent in suit differ from each of examples 1 and 3 of the patent in suit, respectively, in that the water-insoluble fine particles and the water-absorbent polymer were dry blended instead of being added in a slurry, the appellant argued that comparative examples 1 and 2 further differ from examples 1 and 3 in the size of the water insoluble particles and in the water content of the water-absorbent agent compositions. Therefore, no effect having its origin in the distinguishing features identified above, in particular according to feature (c) of claim 1, was convincingly demonstrated.

6.5.1 It is indicated in the patent in suit that:

- examples 1 and 3 are carried out using LUDOX HS-30 as insoluble particles, which have an average particle diameter of primary particles of silica of 12 nm (paragraphs 223 and 227);
- comparative examples 1 and 2 are carried out using Aerosil 200 as insoluble particles, which have an average particle diameter of primary particles of silica of 12  $\mu\text{m}$  and an average particle diameter of aggregates of 37  $\mu\text{m}$  (paragraph 229 of the patent in suit).

Considering that feature (c) of claim 1 deals with the particle size of the water insoluble particles mixed to the water-absorbent agent, the relevant particle size for comparative examples 1 and 2 is that of the aggregates, namely 37  $\mu\text{m}$ . Therefore, it is agreed with the appellant that comparative examples 1 and 2 differ

from examples 1 and 3, respectively, also in the particle size of the water-insoluble particles. However, it remains that said difference is directly related to the feature of average particle diameter identified above as distinguishing the subject-matter of claim 1 from the closest prior art.

- 6.5.2 It is also correct that it is disclosed in Table 3 of the patent in suit that the moisture content of examples 1, 3 and comparative examples 1, 2 is of 3.4, 2.9, 2.3 and 2.2 %, i.e. comparative examples 1 and 2 differ from examples 1 and 3, respectively, also in the moisture content of the water-absorbent agent composition.

However, the teaching which may be derived from D2 (page 12, lines 20-46) is that a moisture content of less than 1 wt.% may lead to a deterioration of the mechanical properties of water-absorbent materials similar to those of those examples and that such a deficiency may be removed by increasing the moisture content to 3 wt.% or more. Therefore, that teaching is not related to the property LDV decreasing rate which is relevant in the present case. Besides, the moisture contents indicated in Table 3 of the patent in suit are all above the value of lower than 1 wt.% which is to be avoided according to D2. Also, there is no evidence that moisture content differences of around 1 wt.% as reported in Table 3 would have any effect on LDV decreasing rate.

- 6.5.3 It is further noted that the appellant's objection according to which it was not demonstrated that the distinguishing features identified above led to improved storage and handling stability is, apart from the objections raised against comparative examples 1-2,

not supported by any other evidence.

Also, no argument was submitted in order to refute the presumption arising from the teaching of e.g. paragraphs 19-22, 90, 98 of the patent in suit that the slurry step (c) has an effect on the structure of the water-absorbent agent thus prepared, because the water insoluble particles slightly enter into the water-absorbent agent, which leads to the effect that the water-insoluble particles hardly separate from the water-absorbent agent so that the liquid updrawing property hardly deteriorates even with environmental changes due to inappropriate storage or process damages.

- 6.5.4 In view of the above, examples 1, 3 and comparative examples 1, 2 of the patent in suit render credible that the problem effectively solved over example 19 of D1 is that of providing a method for producing a water-absorbent agent composition having improved storage and handling stability.
  
- 6.6 Assessing whether the proposed solution is obvious having regard to the state of the art
  - 6.6.1 The question to be answered is if the skilled person desiring to solve the problem identified as indicated above, would, in view of the closest prior art, possibly in combination with other prior art or with common general knowledge, have modified the disclosure of the closest prior art in such a way as to arrive at the claimed subject matter.
  
  - 6.6.2 None of the documents relied upon by the appellant is directed to the problem of providing a water-absorbent agent composition having improved storage and handling

stability, which is the problem effectively solved over the closest prior art.

6.6.3 D1 teaches that the liquid-permeability-enhancing agent ( $\beta$ ), i.e. the water-insoluble particles such as Sipernat 2200 used in example 19, is used to spread the spaces between the water-absorbent polymeric particles (page 32, lines 3-7), which, as argued by the respondent, implicitly teaches the use of particles having a particle size in the range of micrometers or in any case much larger than particles having an average particle diameter of 1 to 100 nm according to feature (c) of claim 1. Therefore, although it is indicated in D1 (page 34, lines 17-22) that the inorganic particles may be added among others in the form of a slurry, D1 on its own does not lead to the subject-matter of claim 1.

6.6.4 The appellant's objection relied on the combination of D1 with D3a.

D3a is directed to a method for the production of water-absorbing resin particles in which a hydrophilic organic solvent and an inorganic sol are added to water-absorbing resin particles while stirring the said water-absorbing resin particles, and a mixture obtained, after which this mixture is dried (claim 1). Considering that D3a is directed to a slurry process, it is highly questionable whether its teaching would be combined with that of example 19 of D1, which is directed to a dry blending process.

Besides, it is also indicated in D3a that the inorganic particles are adhered to the surface of the water-absorbent polymer (paragraphs 24-25 of D3a), which appears to be directed to smaller particles (particle

sizes of 1-500 nm are explicitly indicated in paragraph 11; colloidal silica is used in examples 1, 2, 4 and 5 of D1) than those used in D1.

It is further noted that in D1, care is taken to eliminate particles of small diameter e.g. less than 180 or 150  $\mu\text{m}$  (page 21, line 28 to page 22, line 10), which is explicitly done in the examples of D1, in particular in example 19 (page 64, lines 24-28; page 65, lines 3-6). Under those circumstances, combining the teaching of D3a with that of D1 amounts to incorporating particles which have been eliminated in a precedent process step, which does not make technical sense.

In view of the above, it is concluded that the teaching of example 19 of D1 and D3a are neither compatible with each other (different processes; different particle size of the water insoluble particles) nor can lead to the subject-matter of claim 1 in an obvious way.

6.6.5 During the oral proceedings before the Board, the appellant considered applying the teaching of D1 and D3a one after the other, e.g. by carrying out a process according to D3a to particles prepared according to D1.

However, it was not shown that the skilled person would have had any reason to do so in order to solve the technical problem identified above. Besides, as explained above, the combination of both teachings does not make technical sense. Therefore, that objection is considered to be arrived at based on hindsight, knowing the solution proposed by operative claim 1, which is not allowable.

6.6.6 For those reasons, the subject-matter of claim 1 is inventive.

7. Auxiliary request D being allowable, it is not required to deal with auxiliary requests 29 and 30 filed with letter of 6 October 2014.

## Order

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

1. The decision under appeal is set aside.
2. The case is remitted to the department of first instance with the order to maintain the patent in amended form on the basis of auxiliary request D filed during the oral proceedings, and after any necessary consequential amendment of the description.

The Registrar:

The Chairman:



G. Rauh

D. Semino

Decision electronically authenticated