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**Datasheet for the decision  
of 17 February 2011**

**Case Number:** T 0624/08 - 3.3.09

**Application Number:** 98919817.1

**Publication Number:** 0979250

**IPC:** C08J 3/12

**Language of the proceedings:** EN

**Title of invention:**

Superabsorbent polymers having improved processability

**Patent Proprietor:**

Evonik Stockhausen GmbH

**Opponent:**

Nippon Shokubai Company Limited  
BASF SE  
Stockhausen GmbH

**Headword:**

-

**Relevant legal provisions:**

EPC Art. 83, 123(2)  
RPBA Art. 13

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

-

**Keyword:**

"Added subject-matter (no)"  
"Sufficiency of disclosure (yes)"  
"Remittal to the opposition division"

**Decisions cited:**

T 0297/90, T 0137/01, T 1008/02, T 1018/05

**Catchword:**

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Case Number: T 0624/08 - 3.3.09

**DECISION**  
of the Technical Board of Appeal 3.3.09  
of 17 February 2011

**Appellant:**  
(Patent Proprietor)

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(Opponent 1)

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**Representative:**

-

**Decision under appeal:**

**Decision of the Opposition Division of the  
European Patent Office posted 18 January 2008  
revoking European patent No. 0979250 pursuant  
to Article 101(2) EPC 1973.**

**Composition of the Board:**

**Chairman:** W. Sieber  
**Members:** N. Perakis  
K. Garnett

## Summary of Facts and Submissions

I. Mention of the grant of European patent No. 0 979 250 in respect of European patent application No. 98919817.1 in the name of Dow Global Technologies Inc. (now Evonik Stockhausen GmbH), which had been filed as international application No. PCT/US1998/007963 on 5 March 1998, was announced on 14 April 2004 (Bulletin 2004/16). The patent was granted with 19 claims, Claims 1, 15 and 17 reading as follows:

"1. A composition comprising aqueous fluid absorbent polymer particles which have been heat-treated at temperatures greater than 170°C for more than 10 minutes, wherein the composition has been remoistunzed (*sic*), after the heat-treatment, with an aqueous additive solution containing a mono- or multivalent metal salt in the absence of an organic solvent or water-insoluble, non-swellable powder, wherein the composition comprises 1 to 10 percent by weight, based on the total weight of the composition, water and wherein the composition is characterized by the ability to absorb at least 20 grams of a 0.9 weight percent aqueous saline solution under a pressure of 0.3 psi (21,000 dynes/cm<sup>2</sup>), that is, a 60 minute 0.3 psi (21,000 dynes/cm<sup>2</sup>) absorption under load (AUL) greater than 20 grams/gram."

"15. A process comprising:

- (a) preparing a water-swellable hydrogel by a gel polymerization process;
- (b) drying and sizing the hydrogel to form a composition comprising dried and sized particles,

- the composition comprising particles having a particle size distribution of 50 to 1500 microns;
- (c) heat-treatment; and
  - (d) contacting the composition with an aqueous additive solution containing a mono- or multivalent metal salt in the absence of an organic solvent or water-insoluble inorganic powders, wherein the composition is characterized by a 60 minute 0.3 psi (21,000 dynes/cm<sup>2</sup>) AUL greater than 20 grams/gram."

"17. A process comprising:

- (a) preparing a water-swellaible hydrogel by a gel polymerization process;
- (b) drying and sizing the hydrogel to form a composition comprising dried and sized particles, the composition comprising particles having a particle size distribution of 50 to 1500 microns;
- (c) contacting the composition with an aqueous additive solution containing a mono- or multivalent metal salt in the absence of an organic solvent or water-insoluble inorganic powders, wherein the composition is characterized by a 60 minute 0.3 psi (21,000 dynes/cm<sup>2</sup>) AUL greater than 20 grams/gram. (*sic*)
- (d) drying and heat-treating the composition; and optionally,
- (e) remoisturization (*sic*) of the heat-treated SAP so that the resultant SAP contains up to 10 percent of water."

Hereinafter the abbreviation AUL will be used as shorthand for the parameter "60 minute 0.3 psi (21,000 dynes/cm<sup>2</sup>) absorption under load".

II. Notices of opposition were filed by:

- Stockhausen GmbH (opposition subsequently withdrawn);
- Nippon Shokubai Co., Ltd. (Opponent 1); and
- BASF AG (now BASF SE, Opponent 2).

The opponents requested revocation of the patent in its entirety, invoking the grounds pursuant to Articles 100(a) to (c) EPC.

During the opposition proceedings the following document was *inter alia* cited:

D1: US 5 147 343 A.

III. By a decision announced orally on 7 December 2007 and issued in writing on 18 January 2008 the opposition division revoked the patent, because the subject-matter of the Main Request (granted claims) and Auxiliary Requests 1 and 2 (filed during the oral proceedings of 7 December 2007) was not disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Article 100(b) EPC). Furthermore, the Main Request contained subject-matter which extended beyond the content of the application as filed (Article 100(c) EPC). Auxiliary Request 3 filed during the oral proceedings of 7 December 2007 was not admitted into the proceedings.

Regarding the objection raised under Article 100(c) EPC, the opposition division considered that the expression "an aqueous additive solution containing ... a multivalent metal salt" was not part of the original disclosure. The opposition division observed that

although original Claim 2 disclosed an aqueous additive solution containing multivalent metal salt, this claim did not refer to the specific process defined in granted Claims 15 and 17.

Regarding the objection raised under Article 100(b) EPC, the opposition division pointed out that, according to the patent specification, the AUL-parameter had to be measured in accordance with the AUL-test set forth in D1. In this test, AUL is determined on the sieved particle fraction having a particle size of about 300 to 600  $\mu\text{m}$ . The patent did not, however, disclose how much of this particle size fraction had to be present in the composition of Claim 1 in order to guarantee a representative AUL-value for the whole composition. If, for example, a superabsorbent material was used which comprised only a minor amount of particles within the range of 300 to 600  $\mu\text{m}$ , the disclosure of the patent in suit did not contain sufficient information and to enable it to be concluded that such a superabsorbent material as a whole was suitable to achieve the desired effects underlying the patent in suit. In this context reference was made to T 137/01 (not published in OJ EPO).

- IV. On 18 March 2008 the Patent Proprietor filed an appeal against the decision of the opposition division and paid the appeal fee on the same day. The statement setting out the grounds of appeal was filed on 28 May 2008. The Appellant requested that the decision under appeal be set aside and the patent be maintained on the basis of the claims as granted (main request). Auxiliary requests were also filed, which were

ultimately replaced with Auxiliary Requests 1 to 12 filed with the letter dated 14 January 2011.

- V. Respondent 1 (Opponent 1) and Respondent 2 (Opponent 2) filed their observations with letters dated 10 October and 22 October 2008, respectively. The Respondents essentially defended the decision of the opposition division and reiterated their objections raised under Articles 100(b) and (c) EPC. In support of its arguments Respondent 1 filed *inter alia* the following documents:

D20: "Modern Superabsorbent Polymer Technology" edited by F.L. Buchholz and A.T. Graham, Wiley-VCH, 1997, pages 211-215; and

D21: US 5 599 335 A.

- VI. By letter dated 13 January 2011 Respondent 1 filed additional arguments regarding insufficiency of disclosure. The following additional document was *inter alia* filed:

D28: "Modern Superabsorbent Polymer Technology", edited by F.L. Buchholz and A.T. Graham, Wiley-VCH, 1998, pages 97-103 and 143-145.

- VII. During the written appeal procedure both Respondents requested the remittal of the case to the opposition division in the event that the issues of novelty and inventive step became relevant, because these issues had not yet been discussed.

VIII. Oral proceedings were held before the board on 17 February 2011.

IX. The Appellant (Patent Proprietor) requested that the decision under appeal be set aside and the patent be maintained as granted, alternatively on the basis of auxiliary requests 1 to 12 filed with the letter dated 14 January 2011.

The Respondents (Opponents) requested that the appeal be dismissed, alternatively, in the event of the decision being set aside, that the case be remitted to the opposition division.

In the event of the Appellant's requests not being allowed, the request of the Respondents for remittal was not opposed by the Appellant.

X. The arguments put forward by the Appellant in its written submissions and at the oral proceedings regarding the Main Request can be summarized as follows:

Article 123(2) EPC

- The contested feature "an aqueous additive solution containing a mono- or multivalent metal salt" in Claims 15 and 17 was disclosed in originally filed dependent Claim 2, which formed part of the original disclosure. Since originally filed Claim 1, on which Claim 2 was dependent, was a product-by-process claim, Claim 2 provided support also for process claims such as granted Claims 15 and 17.



Article 83 EPC

- Many objections under the umbrella of insufficiency of disclosure were raised by the Respondents. Some of them were raised very late, namely in the letter of Respondent 1 dated 13 January 2011. These objections were not *prima facie* relevant and should not be admitted into the proceedings under Article 13 RPBA.
- The objections to be considered were those raised in the replies to the appeal, namely (i) the alleged contradiction between Claim 1 on one hand and Claims 6 and 11 on the other hand, (ii) the measurement of the AUL of the claimed composition, (iii) the open upper range of the AUL-values and (iv) the absence of any teaching as to how to systematically obtain AUL-values greater than 20 g/g.
- There was no contradiction between Claim 1, which required the absence of an organic solvent, and Claims 6 and 11, which allowed further the presence of a propoxylated polyol. The disclosure of a patent was directed to a skilled person in the art; such a person would realize that the function of propoxylated polyol in the patent in suit was that of an additive and not that of an organic solvent.
- Concerning the AUL, its measurement was performed according to the method cited in the contested patent (paragraph [0008]). That method required the particles to be pre-screened using US standard #30 and #50 mesh sieves. The AUL-value thus corresponded to particles with a size ranging between 300 and 600  $\mu\text{m}$ . The Appellant could not explain, however, why this particular fraction had to be selected.
- Regarding the AUL-value as measured, it was representative of the absorbent polymer particles in

their entirety and this value was meaningful for the claimed composition.

- Furthermore, according to the wording of Claim 1, which required that the fraction of particles with a size ranging between 300-600  $\mu\text{m}$  should have an AUL of greater than 20 g/g, such particles were indeed comprised in the claimed composition. Compositions having no such particles were not covered by the scope of that claim.
- Contrary to the opposition division's decision and to the Respondents' allegation, the AUL-value was not significantly particle-size dependent. D20 (Figure 5.27) did not support this allegation and did not imply that the amount of the measured fraction significantly influenced the AUL. Neither did D21 (Table 4) show that AUL, when determined under a pressure of 0.7 psi, was particle-size dependent. The very small differences between different particle sizes were within the accuracy of the AUL-method. Overall, the Respondents had not submitted technical evidence to prove the contrary.
- Regarding the objection related to the open upper-end of the AUL-value range, this was in fact a clarity objection and not one concerning insufficiency. It would be unfair to demand a restriction to the highest exemplified value of 30.5 g/g as the upper limit. The skilled person would know that the upper-end of the AUL-value range was inherently limited by other composition parameters such as the superabsorbent polymer, its preparation and its post-treatment process.
- Finally, with regard to the objection concerning the absence of a concrete teaching leading systematically to AUL-values greater than 20 g/g,

the skilled person would be able to manufacture an aqueous fluid absorbent polymer with the claimed AUL by monitoring the process features of the claimed subject-matter.

XI. The arguments put forward by the Respondents in their written submissions and at the oral proceedings concerning the Main Request can be summarized as follows:

Article 123(2) EPC

- The subject-matter of process Claims 15 and 17 did not fulfil the requirements of Article 123(2) EPC because the feature "an aqueous additive solution containing a mono- or multivalent metal salt" was only disclosed in original dependent Claim 2, a product claim, which could not provide support for the subject-matter of the contested process claims. Even if a process could be derived from the combination of Claim 1 (product-by-process claim) with Claim 2, the process of Claims 15 and 17 was objectionable under Article 123(2) because it did not contain all the process features comprised in the combination of Claims 1 and 2. Furthermore, the required support was also not provided by the originally filed description because it disclosed "an aqueous additive solution containing a mono- or selected multivalent metal salt". This definition of the aqueous additive solution was more restrictive and did not concern any multivalent metal salt.

Article 83 EPC

- There was a contradiction between Claim 1 - which required the absence of organic solvents - and

Claims 6 and 11 - which required the presence of polyols, which the skilled person would consider to represent organic solvents. The term "solvent" had not been defined in the contested patent. The term "polyols" could be interpreted to be organic solvents in the sense of the patent or merely cross-linking agents. However, polyols such as the propoxylated polyols of Claims 6 and 11 would be regarded as organic solvents by the skilled person. As the patent did not sufficiently disclose how to distinguish between the term "solvent" and the term "cross-linking agent", the skilled person would not know when he was working within the forbidden area of the claims. In addition, it was not clear from the patent whether the absence of an "organic solvent" also extended to those organic solvents, such as polyethylene glycol, which remained from a preceding step such as the surface-post-cross-linking (Examples 18-20).

- Regarding the AUL-value of the claimed subject-matter, it resulted from the measurement of only a fraction of particles with a size ranging between 300 and 600  $\mu\text{m}$ . This fraction was, however, not representative of the whole claimed composition. Thus it did not give sufficient information on the superabsorbent material as a whole, which was not limited with respect to its particle size distribution. The quantitative participation of the measured fraction in the absorbent polymer particles was not defined in the claims or the description.
- The conclusion that the measured fraction was not representative of the whole polymer composition was based on the disclosure of D20 and D21, which demonstrated that the AUL-value depended on the

particle size. Thus D20 (Figure 5.27) showed that the smaller particles compared to the larger particles had a smaller AUL. D21 (Table 4; columns 21/22) showed that significant differences in the PUP capacity (corresponding to the AUL) were observed when comparing fractions with different particle sizes.

- The reasoning of decision T 137/01 (*supra*), regarding insufficiency of disclosure, applied in the present case, although a different parameter was used to define the composition, namely AUL.
- Regarding the claimed AUL-value range it did not contain an upper limit. The highest exemplified value was 30.5 g/g and the patent did not give the skilled person the necessary instructions to achieve higher values. The consequence was that the invention could not be carried out by a skilled person within the whole scope of the claim.
- Finally the contested patent did not disclose any concrete instructions how AUL-values greater than 20 g/g could be systematically obtained. In fact the technical evidence in the contested patent showed that AUL-values varied uncontrollably after remoisturization (Tables I, II, IV in the patent).
- The additional objections raised by Respondent 1 in the letter dated 13 January 2011 should be allowed into the proceedings since they related to relevant points. The most important among them concerned the water-content of the composition, which had to be within the range of 1-10 wt%. The patent did not disclose how to unambiguously determine this content and did not provide any measurement concerning the water-content of the final composition. The skilled

person would also be unable to derive the required amount from the water added during remoisturizing.

### Reasons for the Decision

1. The appeal is admissible.
2. Compliance with Article 123(2) EPC

An objection under Article 123(2) EPC was raised against the subject-matter of granted process Claims 15 and 17.

- 2.1 Granted Claims 15 and 17 require, in step (d) and step (c) respectively, that the composition be brought into contact with an aqueous additive solution **containing a mono- or multivalent metal salt**. However, the definition of the aqueous additive solution in originally filed Claims 16 and 18, from which the above cited granted claims derive, did not contain the feature concerning the metal salt.

- 2.2 This feature was the specific embodiment of originally filed dependent product Claim 2, which reads as follows:

*"2. Composition according to Claim 1 characterized in that the aqueous additive solution contains a mono- or multivalent metal salt".*

Claim 2 as filed was dependent on Claim 1. Claim 1 was directed to a composition comprising aqueous fluid absorbent polymer particles and was *inter alia* defined by process features (product-by-process), namely a

process whereby aqueous fluid absorbent polymers, after they have been heat-treated, are remoisturized with an aqueous additive solution. In fact the combination of Claims 1 and 2 as filed led to granted Claim 1 (point I above).

2.3 Thus, Claim 2 as filed (in combination with Claim 1 as filed) provides a clear disclosure for a process whereby aqueous fluid absorbent polymers, after they have been heat-treated, are remoisturized with an aqueous additive solution containing **any** mono- or multivalent metal salt. The skilled reader would certainly realize that there is no restriction in Claim 2 as filed as to the nature of the mono- or multivalent metal salt and that this principle is applicable to the processes described in the application as filed where aqueous fluid absorbent polymers are remoisturized with an aqueous additive solution.

2.4 This is actually what is claimed in the processes of granted Claims 15 and 17 (based on original Claims 16 and 18, respectively). Both claims require that a composition comprising dried and sized aqueous fluid absorbent polymer particles is further treated in respective steps (d) and (c) by contacting the composition with an aqueous additive solution containing a mono- or multivalent metal salt.

2.5 The disclosure of Claim 2 as filed is also not invalidated by the statement on page 4, lines 29-31, which reads as follows:

*"The additives useful in the aqueous additive solution of the present invention include, for example, salts of mono- and selected multivalent metal ions. Suitable metal ions include sodium, potassium, or aluminum ions."*

Firstly, this passage is merely exemplary ("for example") rather than restrictive as regards the metal ions. Secondly, the board, in agreement with the Appellant, acknowledges that in the context of an issue under Article 123(2) EPC the skilled reader would consider the whole content of the originally filed application, which comprises the description, the claims and the figures. As pointed out in point 2.3 above, original Claims 1 and 2 provide a fair basis the definition of the metal salt in granted Claims 15 and 17.

2.6 In view of the above the board comes to the conclusion that the subject-matter of Claims 15 and 17, in particular as regards an aqueous additive solution containing mono- or multivalent metal salts, is directly and unambiguously derivable from the originally filed application and thus does not contravene Article 123(2)/Article 100(c) EPC.

3. Compliance with Article 83 EPC

The objections raised under Article 83 EPC essentially concerned the parameter "a 60 minutes 0.3 psi (21,000 dynes/cm<sup>2</sup>) absorption under load (AUL) greater than 20 grams/gram".



The Respondents argued that the contested European patent did not disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art because:

- the above parameter did not define the AUL of the entire absorbent polymer composition;
- the open-end range of AUL did not allow the skilled person to perform the patent over the whole claimed range; and
- the patent did not disclose the invention in a manner such that the skilled person could systematically obtain compositions satisfying the AUL-parameter.

The Respondents raised an additional objection under Article 83 EPC concerning an alleged contradiction between Claim 1 (absence of organic solvent) and Claims 6 and 11 (further comprising propoxylated polyol, which is an organic solvent).

### 3.1 Method of measuring AUL

- 3.1.1 The board acknowledges that the claims do not comprise a definition of the method to be used for the measurement of the AUL of the composition. Nevertheless, the patent specification (page 3, lines 3-4) provides a clear and unambiguous disclosure of the method to be used, stating that the composition is characterised by the ability to absorb 20 grams of a 0.9 weight per cent aqueous solution under a pressure of 0.3 psi, that is:

*"... a 60 minutes 0.3 psi (21,000 dynes/cm<sup>2</sup>) AUL greater than 20 grams/gram as measured in accordance with the Absorption Under Load Test set forth in U.S. Patent*

No. 5,147,343". [This document corresponds to D1 of the appeal proceedings].

The board is satisfied that D1 (column 8, line 41 to column 9, line 48) discloses this test in full detail and thus enables the skilled person to carry out this test - something which was not contested by the Respondents. The board, however, acknowledges the potential artificiality of this test, which is actually the origin of the dispute between the parties, namely that it does not use all polymer granules from the claimed composition in the measurement of AUL but only a fraction thereof. Thus a sample is prepared by **pre-screening** the granules through a U.S. standard #30 mesh and keeping only those retained on a U.S. standard #50 mesh. The AUL is then determined by measurements carried out on this fraction, which thus contains only particles with a size ranging between around 300 and around 600  $\mu\text{m}$ . As a matter of convention, the AUL-value measured for this particular fraction is then attributed to the **sample composition as a whole**, i.e. to a composition including all polymer granule fractions.

The board observes that neither D1 nor any other of the cited documents provides a technical explanation for the selection of the specific particle size fraction in the AUL measuring method. Nor could such an explanation be provided by the parties at the oral proceedings. This is, however, immaterial since D1 gives the skilled person clear instructions how to carry out the measurement.

3.1.2 The board acknowledges that the potential artificiality underlying the AUL-test described in D1 may be even more artificial in the present case. In particular, Claim 1 relates to a composition **comprising** aqueous fluid absorbent polymer particles but attributes the AUL to the **whole composition**. The board accepts that the AUL-value measured on a particular particle fraction of such a composition may indeed be even less representative for a composition comprising, besides the absorbent polymer particles, further components (e.g. non-absorbents) than for a composition essentially consisting of only absorbent polymer particles. Nevertheless, the convention or artificiality stemming from D1 is not invalidated by this fact.

3.1.3 In the Board's view, this convention cannot be validly objected to under Article 83 EPC. A person trying to repeat the invention has merely to pre-screen the composition through a U.S. standard # 30 mesh, to retain the particles on a U.S. standard # 50 mesh, carry out the AUL-test on the retained sample of granules and then attribute the resulting value - in accordance with the convention - to the composition as a whole.

Under these circumstances it is not necessary to further consider whether the AUL-value depends on the particle size.

3.1.4 In the board's view there can also be no doubt that the claim requires that the composition indeed comprises particles of the required size. If no such particles are present in the composition, no AUL-value can be

measured using the prescribed method, so that such a composition would in any case not fall within the scope of the claims.

3.1.5 However, the particularity of the AUL-test may lead to the parameter as defined in Claim 1 being, at least to a certain extent, technically meaningless. For example, a composition may have, in accordance with the convention of the AUL-test, the required AUL-value, but may in fact have a rather "bad" absorbency under load in practice, for example because the composition contains only a very small amount of the material responsible for it. In the board's view, however, this aspect relates not to insufficiency of disclosure, but rather is to be evaluated in the assessment of inventive step.

3.1.6 Finally the board does not consider that the conclusions of T 137/01 on sufficiency of disclosure apply by analogy to the present case. In T 137/01 the claimed invention was also defined by parameters of the superabsorbent material, namely the "Resistance to Deformation Under Load" and the "Wicking Index", although these are different from the AUL parameter used to define the present invention. In T 137/01, the patent, as with the present patent, only disclosed how to measure the parameters for absorbent particles with sizes between 300 and 600  $\mu\text{m}$ .

In T 137/01 the board took the view that since the claim was not limited to composites only having absorbent particles lying within this range, and since the patent did not disclose how much of the absorbent material should consist of particles lying within this

range, there was not enough information enabling the skilled person to say that the absorbent material as a whole would be suitable for achieving the desired effects, these effects being achieved when the measured values of the parameter of the "whole superabsorbent material [fell] within specific numerical ranges."  
(Point 2.2.1 of the Reasons).

3.1.7 The present board reads the present patent differently. The board considers that it would be apparent to the skilled person that the AUL-value to be attributed to the composition for the purpose of the claimed invention cannot be the actual AUL-value for the "whole" composition because the stipulated AUL determination method requires sieving, as already explained. Since the composite is likely to have also absorbent particles with sizes lying outside the 300 - 600  $\mu\text{m}$  range (see e.g. the reference to the problem of polymer particles in the form of dust: paragraph [0002] of the patent specification) the AUL-value obtained is at best only likely to be representative of the actual AUL characteristics of the composite (except in the unlikely case of the composite comprising only polymer particles falling within the claim range). How representative the value will be for the whole composition will depend on the particular circumstances, in particular on the nature of the absorbent polymer used and the constitution of the composition as a whole. But the parameter is, nevertheless, capable of being measured and the skilled person will be able to tell if any particular composition falls within the claimed parameter value range. As already indicated, however, the stipulated method of determining the AUL-value will

clearly become highly relevant when it comes to evaluating inventive step.

3.2 AUL value defined as an open-ended range

3.2.1 The composition referred to in the claims (see for example Claim 1) must have an AUL-value of greater than 20 g/g. In essence it was argued that this open-ended range was unduly broad so that it would embrace values of AUL which were not yet known and/or it was not known how they could be achieved. In fact, the highest AUL-value in the examples of the contested patent is 30.5 g/g (Table III, Example 12). However, the Board does not construe the AUL-value range as claimed, i.e. without defining a specific upper-end, as being unlimited.

3.2.2 This objection is based on an erroneous interpretation of the subject-matter covered by the claims. It is clear for a skilled reader that a claim such as present Claim 1 including an open-ended range is limited in practice. In fact, values of the parameter not obtainable in practice would not be regarded by the skilled reader as being covered by the claim and thus could not justify an objection of insufficiency of disclosure (see Case Law of the Boards of Appeal of the EPO, 6th edition 2010, Section II.A. 6.1; see also point 2.3 of T 1018/05 and point 2.2 of T 297/90 both cited therein). The use of an open-end formulation simply seeks to embrace values which should be as high as can be technically attained above the specified minimum, given the other parameters of the claim.

In the present case there is a clear teaching in the patent specification, including numerous examples, how to achieve compositions with the desired value of absorbency under load greater than 20 g/g. Moreover Claim 1 includes process features (heat treatment of a starting material and its remoisturization with a specific aqueous additive solution), so that the skilled reader would immediately understand the practical repercussions of these limitations, namely that the starting material and the method for the preparation of the water-absorbent powder set the practical limitations for the value of absorption under load.

- 3.2.3 The Respondents did not question the examples in the patent in suit nor did they submit any experimental evidence showing that the invention could not be performed. Consequently, the board is satisfied that the requirement of sufficiency of disclosure with regard to the open-ended range for the AUL is met.
- 3.2.4 In reaching this conclusion the board has also considered the decision T 1008/02 (not published in OJ EPO). There, the board concluded that the auxiliary request under consideration did not fulfil the requirements of sufficiency because none of the examples showed the claimed properties, in particular an absorbency under load of "at least 27 ml/g", and no evidence had been produced that a superabsorbent having *inter alia* this property was available to the skilled person (see points 3.3 and 3.4 of the reasons). Thus, the situation in that case differs from the present case where the patent provides various examples with

values of absorbency substantially greater than 20 g/g (e.g., 30.5 g/g).

3.3 Performance of the invention so that AUL values systematically fall within the claimed range

3.3.1 The board is satisfied that the experimental part of the contested patent exemplifies compositions with an AUL falling within the claimed range. The board does not dispute the fact that a comparison of the examples in the patent in suit with regard to the AUL-values before and after remoisturization indicates that the AUL-value can either increase (see Table II: compare the  $AUL_{0.3 \text{ psi}}$  of Feed polymer 2 with that of Examples 7-9) or decrease (see Table IV: compare the  $AUL_{0.3 \text{ psi}}$  of Feed polymer 6 with that of Examples 14, 18-20) or even remain the same (see Table I: compare the  $AUL_{0.3 \text{ psi}}$  of Feed polymer 1 with that of Comparative Example A and Example 1). Nevertheless, the board observes that in all these examples referred to by the Respondents, the measured AUL has a value falling within the claimed range. Thus sufficiency of disclosure cannot be plausibly contested. In particular since commercial products are used as the starting materials (paragraphs [0045] and [0050]).

3.3.2 Even if remoisturizing were to decrease AUL of the heat-treated polymer particles, it appears to be an obvious measure to use heat-treated polymer particles with a sufficiently high AUL-value in the first place so that despite a decrease after remoisturizing the AUL-value would still be above the lower limit.



- 3.4 The contradiction between Claim 1 and Claims 6 and 11
- 3.4.1 According to independent Claim 1 the composition is remoisturized with a specific aqueous additive solution in the absence of an organic solvent. On the other hand, Claims 6 and 11, both dependent on Claim 1, specify that the aqueous additive solution further comprises a propoxylated polyol, which is, as pointed out by the Respondents, normally considered to be an organic solvent.
- 3.4.2 The board accepts that there is a *prima facie* contradiction between Claim 1 (absence of organic solvent) and Claims 6 and 11 (further comprising propoxylated polyol). Nevertheless, the board considers that a skilled person would understand from reading the claims that, in the context of the present patent, propoxylated polyols are not considered to be organic solvents which have to be excluded. This is in fact supported by paragraph [0017] of the patent specification which describes, in addition to sodium, potassium or aluminium ions, propoxylated polyols as suitable additives, in particular to further bind the fine dust of the final superabsorbent polymer. Thus, the patent specification attributes to the propoxylated polyols a particular function different from the "normal" solvent function.
- 3.4.3 In fact this issue relates to clarity, namely the interpretation of the terms used in the claims, rather than to sufficiency of disclosure. In any event, the apparent contradiction is resolvable, as explained above.

4. Admissibility of additional arguments regarding sufficiency of disclosure
  - 4.1 With its letter dated 13 January 2011 Respondent 1 filed numerous additional arguments relating to sufficiency of disclosure. The most relevant among these arguments concerned the absence of any disclosure of the method of measuring the water-content of the claimed composition. According to Claim 1 the composition comprises 1 to 10 percent by weight water, based on the total weight of the composition.
  - 4.2 These new arguments were filed long after Respondent's 1 reply to the statement of grounds of appeal (filed with letter dated 10 October 2008) and also after the board had issued the summons to attend oral proceedings (11 August 2010). These arguments and lines of attack were therefore submitted very late and would have required amendment to Respondent 1's case (Article 13(1) RPBA), as well as prolonging and complicating the appeal. Furthermore, these new arguments are not *prima facie* relevant. In particular with regard to the method of measuring the required water-content of 1 to 10 wt%, the board observes that the originally filed application (page 12, lines 26-29) and the patent specification (paragraph [0048] first sentence) disclose that the moisture-content of the superabsorbent polymer resin is determined by weight loss at 105°C for 3 hours. This method corresponds exactly to the disclosure of D28 where the following is stated at page 143, paragraph 4.5.3.1:

*"Traditionally the determination of moisture in superabsorbent polymers has been obtained*

*gravimetrically after heating the sample at 105°C for 3 h."*

Thus, apart from the fact that the method of measuring the water-content is disclosed in the patent specification itself, this method even appears to belong to the common general knowledge of a person skilled in the art.

4.3 In view of the above considerations, the board exercising its discretion power under Articles 13(1) RPBA decided not to allow Respondent 1 to amend its case and thus to admit the additional arguments relating to sufficiency into the proceedings.

5. Remittal

The Respondents requested, and the Appellant did not oppose, remittal of the case to the opposition division in the event that it became necessary to discuss novelty and inventive step. Since the outstanding issues of novelty and inventive step were not addressed in the decision under appeal and the question as to the relevance of the AUL-parameter for the assessment of inventive step arose for the first time at the oral proceedings before the board, the board, in the exercise of its power under Article 111(1) EPC and in accordance with the parties' wishes, will remit the case to the opposition division for further prosecution.

**Order**

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

1. The decision under appeal is set aside
2. The case is case is remitted to the opposition division for further prosecution.

The Registrar:

The Chairman:

G. Röhn

W. Sieber