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# Datasheet for the decision of 9 November 2022

**Case Number:** T 2038/19 - 3.3.03

**Application Number:** 12819365.3

**Publication Number:** 2740747

**IPC:** C08F2/32, C08J3/12, A61L15/60

**Language of the proceedings:** EN

**Title of invention:**
WATER ABSORBING RESIN PARTICLES, METHOD FOR MANUFACTURING WATER ABSORBING RESIN PARTICLES, ABSORPTION BODY, ABSORPTIVE ARTICLE, AND WATER-SEALING MATERIAL

**Patent Proprietor:**
Sumitomo Seika Chemicals Co., Ltd.

**Opponent:**
Nippon Shokubai Co.,Ltd.

**Relevant legal provisions:**
EPC Art. 100(b)

**Keyword:**
Sufficiency of disclosure (no) - all requests

**Decisions cited:**
T 0435/91, T 0063/06

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**Case Number: T 2038/19 - 3.3.03**

# D E C I S I O N
# of Technical Board of Appeal 3.3.03
# of 9 November 2022

| | |
|---|---|
| **Appellant:** (Opponent) | Nippon Shokubai Co.,Ltd.<br>1-1, Koraibashi 4-chome<br>Chuo-ku<br>Osaka-fu<br>Osaka 541-0043 (JP) |
| **Representative:** | TBK<br>Bavariaring 4-6<br>80336 München (DE) |
| **Respondent:** (Patent Proprietor) | Sumitomo Seika Chemicals Co., Ltd.<br>346-1, Miyanishi<br>Harima-cho<br>Kako-gun, Hyogo 675-0145 (JP) |
| **Representative:** | Nederlandsch Octrooibureau<br>P.O. Box 29720<br>2502 LS The Hague (NL) |
| **Decision under appeal:** | **Decision of the Opposition Division of the European Patent Office posted on 14 May 2019 rejecting the opposition filed against European patent No. 2740747 pursuant to Article 101(2) EPC.** |

**Composition of the Board:**

| | |
|---|---|
| **Chairman** | D. Marquis |
| **Members:** | F. Rousseau |
| | W. Ungler |

## Summary of Facts and Submissions

I. The appeal lies against the decision rejecting the opposition against European patent No. 2 740 747 whose claim 1 reads as follows:

"1. Water-absorbent resin particles in which the water-absorption rate of physiological saline is 1 second to 15 seconds, the median particle size is 100 μm to 600 μm, the residual volatile component content is 1.5% by weight or less, and the specific surface area of the water-absorbent resin is 0.14 $m^2/g$ to 0.5 $m^2/g$, wherein the specific surface area of the water-absorbent resin is determined as follows:

a) passing water-absorbent resin particles through a 42 mesh standard JIS Z 8801-1 sieve (mesh size: 355 μm) to adjust a particle size thereof to be retained on an 80 mesh standard sieve (mesh size: 180 μm);
b) drying the sample obtained in step (a) for 16 hours at a temperature of 100°C under reduced pressure of about 1 Pa with a vacuum dryer;
c) measuring the adsorption isotherm of the sample obtained in step (b) at -196°C using krypton gas for the adsorption gas with a high-precision fully-automated gas adsorption system; and
d) determining the specific surface area from a multi-point BET plot."

II. The following item of evidence was submitted during the opposition proceedings:

D6: EP 1 291 368 A1.

III. According to the reasons for the contested decision which are pertinent for the appeal proceedings:

(a) The objection that the patent in suit did not teach how to obtain water-absorbent resin particles having a specific surface area covering the whole range of 0.14 to 0.5 $m^2/g$ defined in claim 1, when the examples concerned particles having surface area solely between 0.143 and 0.158, was not convincing, since the opponent had not provided any fact to support the "allegations that some of the claimed particles" could "not be reproduced".

(b) Additional separate objections concerning sufficiency of disclosure of the water-absorbent resin particles of claim 1, their novelty and inventive step did not succeed either.

(c) The opposition was therefore rejected.

IV. An appeal against that decision was lodged by the opponent (appellant).

V. The reply of the patent proprietor (respondent) to the statement of grounds of appeal was submitted with a letter of 20 January 2019.

VI. Following additional submissions of the appellant with letter of 16 July 2020, the respondent filed with letter of 6 October 2020 auxiliary requests I to XVI.

VII. The amendments to claim 1 of the main request related to the residual volatile component or its content (auxiliary requests I to XVI), the water-absorption rate of physiological saline (auxiliary requests III to

XVI) and the median particle size (auxiliary requests IX to XVI). The amendments inserted in the auxiliary requests did not concern the specific surface area of the water-absorbent resin.

VIII. A communication conveying the Board's provisional analysis of the case was sent in preparation of the oral proceedings. After the rejoinder of the respondent, the appellant had submitted documents D11a, D18, D19 and the respondent documents D17 and D20. These documents are identified in the Board's communication. Those, although relevant to the parties requests, are not relevant for the substantive issue addressed in the present decision. The same holds true for additional items of evidence D8, D9 and D9a, Dl0, Dll and D12 to D16, submitted before the opposition division and also identified in the Board's communication.

IX. Oral proceedings before the Board were held on 9 November 2022 in the absence of the appellant announced with letter of 25 October 2022.

X. The appellant requested that the decision under appeal be set aside and that documents D8, D9 and D9a and/or documents Dl0, Dll and D12 to D16 be admitted into the proceedings and the case be remitted to the opposition division for further examination, or should the case be not remitted to the opposition division and documents D8, D9 and D9a, Dl0, Dll and D12 to D16 be not admitted, the appellant requested that the patent be revoked under consideration of Dl to D7.

XI. The respondent requested that the appeal be dismissed, or alternatively that the decision under appeal be set aside and that the patent be maintained in amended form

on the basis of any of auxiliary requests I to XVI, all filed with letter of 6 October 2020. Furthermore, the respondent requested that documents D8 to Dlla, D12 to D16 and D18 and D19 be not admitted into the proceedings, and that D17 and D20 be admitted into the proceedings, should Dlla be admitted into the proceedings.

XII. The parties' submissions, in so far as they are pertinent, may be derived from the reasons for the decision below. The relevant issue for the present decision is sufficiency of disclosure of the claimed water-absorbent resin particles with respect to the achievement of a specific surface area within the meaning of claim 1 throughout the whole range of 0.14 $m^2/g$ to 0.5 $m^2/g$. Whereas the appellant submits that the water-absorbent resin particles of claim 1 having a surface area higher than those obtained in the examples are insufficiently disclosed, the respondent submits in essence that paragraph [0056] of the patent in suit and the common general knowledge would give the skilled person sufficient guidance to prepare the claimed water-absorbent resin particles over the whole range claimed.

## Reasons for the Decision

*Sufficiency of disclosure*

*Main request (patent as granted)*

1. According to the established jurisprudence of the Boards of Appeal of the EPO a European patent complies with the requirements of sufficiency of disclosure, if

a skilled person, on the basis of the information provided in the patent specification and, if necessary, using common general knowledge, is able to carry out the invention as claimed in its whole extent without undue burden, i.e. with reasonable effort.

This means in the present case to prepare water-absorbent resin particles as defined in claim 1, i.e. meeting the combination of parameters defined in said claim, throughout the whole area(s) claimed, taking into account the information given in the patent in suit, using common general knowledge and routine experimentation.

One of the parameters defining the water-absorbent particles of claim 1 is their specific surface area which must be comprised between 0.14 $m^2/g$ and 0.5 $m^2/g$. According to claim 1, this parameter is not measured on all water-absorbent resin particles, for which the median size is comprised between 100 µm and 600 µm, but on the fraction thereof with a particle size comprised between 180 µm and 355 µm obtained after a twofold sieving step.

2. According to the case law (Case Law of the Boards of Appeal of the EPO, 10th edition 2022, II.C.7.1.2), an invention is in principle sufficiently disclosed if at least one way is clearly indicated enabling the person skilled in the art to perform the invention in the whole range that is claimed. Whether the disclosure of one way of performing the invention is sufficient to enable a person skilled in the art to carry out the invention in the whole claimed range is a question of fact that must be answered on the basis of the available evidence, and on the balance of probabilities in each individual case.

The appellant submits in section 1.2.1 a) of the statement of grounds (page 4) that a specific surface area of the water-absorbent resin particles in the range of 0.14 $m^2/g$ to 0.5 $m^2/g$ as defined in claim 1 is not supported by the examples, which only describe resin particles having a specific surface area of up to 0.158 $m^2/g$ for example 1, the other values obtained with the examples of the patent in suit being 0.154, 0.153 and 0.143 $m^2/g$ for examples 2 to 4, respectively (paragraph [0216], table 2).

This objection failed to persuade the opposition division, since in their opinion no fact had been provided in support of the allegation that some of the claimed particles could not be reproduced (item 2.3 of the reasons for the decision). The opposition division was apparently not convinced by the argument submitted in the second paragraph of section 2.1.a) of the appellant's letter of 11 January 2019 according to which it was neither told in the patent specification nor understandably derivable therefrom how a specific surface area above the subrange from 0.143 to 0.158 $m^2/g$ (shown in the examples 1 to 4 of table 2) could be achieved by production methods 1 to 3, i.e. the methods described in paragraphs [0058] to [0146] of the specification which according to paragraph [0057] can be used to obtain the water-absorbent resin particles of the present invention.

3. This argument concerning the lack of guidance in the specification on how to achieve the surface area of the water-absorbent particles for values which are above those obtained in the examples is again put forward in the statement of grounds of appeal. The respondent submits in reply that the burden of proof that the

invention is insufficiently disclosed lies with the appellant which has not presented serious doubts, substantiated by verifiable facts (rejoinder, page 11, second full paragraph). In their opinion, mere allegations would not shift the burden of proof to the proprietor, here the respondent.

As regards the legal approach for assessing sufficiency of disclosure, an objection of lack of sufficient disclosure presupposes that there are serious doubts, substantiated by verifiable facts (Case Law, supra, II.C.7.1.4). It is however also to be taken into account that the weight of the submissions required to rebut the legal presumption that the patent meets the requirement of sufficiency of disclosure depends on the strength of said presumption and therefore the teaching provided in the patent in suit (T 0063/06 of 24 June 2008, point 3.3.1 of the reasons). A strong presumption requires more substantial submissions than a weak one. In other words, whether the appellant's arguments in relation to sufficiency of disclosure in the present case are no more than assertions without any firm basis depends on the amount of teaching provided in the patent in suit in relation to the achievement of the combination of parameters defined in claim 1 and the relevant common general knowledge.

In that respect, the apparent absence of a teaching in the patent in suit on how to adjust the method of production of the water-absorbent resin particles such as to achieve a specific surface area within the meaning of claim 1 up to value of 0.5 $m^2/g$ constitutes such a verifiable fact casting serious doubts on whether the subject-matter of claim 1 is sufficiently disclosed. The respondent does not contest the appellant's submission that the description of methods

1 to 3 which teach in paragraphs [0058] to [0146] how to prepare the water-absorbent resin particles of present claim 1 does not provide information on how the specific surface area of the water-absorbent resin particles can be adjusted. Neither does the respondent point to passages of the patent in suit giving a methodology to vary the specific surface area of the water-absorbent resin particles within the meaning of operative claim 1 across the whole claim 1, let alone to instructions provided therein allowing the skilled person to transform occasional failure into success.

The respondent did not submit either that the experimental part of the patent in suit alone would allow the skilled person to gather relevant information in this respect.

4. At the oral proceeding the respondent argued that the skilled person taking account the examples of the patent in suit, its paragraph [0056] and the common general knowledge would be able to prepare water-absorbent particles in accordance with operative claim 1 whose specific surface area is up to 0.5 $m^2/g$.

According to paragraph [0056] "*in the case of reversed-phase suspension polymerization using a surfactant having an HLB value of 6 or higher, since the state of a W/O type reversed-phase suspension, which is formed by a continuous phase in the form of an oily liquid (O) and a discontinuous phase in the form of an aqueous liquid (W), can be favorably maintained, it tends to be possible to form fine surface irregularities both uniformly and in a large quantity on the surface of the water-absorbent resin particle.*" Such a reversed-phase suspension polymerization using a surfactant having an

HLB value of 6 or higher is used in methods 1 to 3 described in the patent in suit.

Paragraph [0056] of the specification indicates in lines 12-13 that the specific surface area of the water absorbent resin particles represents the degree of the surface irregularities. According to lines 13-14 of that paragraph "*a water-absorbent resin particle having a large quantity of surface irregularities on the surface thereof has a large specific surface area*". This was not disputed by the appellant and appears in relation to operative claim 1 reasonable, since the specific surface area does not only define the total surface area of the material tested per unit of mass, but is measured in accordance with claim 1 for a sample representing a relatively narrow slice (from 180 µm to 355 µm) of the size of the particles originally obtained.

Having regard to the respondent's submissions, the question to be answered is therefore whether the skilled person starting from the examples of the patent in suit would be able based on the teaching of paragraph [0056] and the common general knowledge to increase the quantity of the surface irregularities of the water-absorbent resin particles in such a way as to obtain a specific surface area of up to 0.5 $m^2/g$.

5. The respondent submitted at the oral proceedings that the skilled person based on the teaching of paragraph [0056] and the common general knowledge would understand that the specific surface area and therefore the level of surface irregularities obtained in examples 1 to 4 of the patent in suit can be increased by selecting a different surfactant having an HLB value of 6 or higher and/or its amount.

Paragraph [0056], however, does not teach that the level of surface irregularities can be adjusted by a proper selection of the surfactant and its amount, but only that it tends to be possible (emphasis added by the Board) to form fine surface irregularities both uniformly and in a large quantity on the surface of the water-absorbent resin particles, when the reversed-phase water in oil suspension is favorably maintained by the use of an appropriate surfactant having a HLB value of 6 of higher. While it can be accepted that an appropriate amount of such surfactant having a HLB value of 6 of higher must be used to maintain the water in oil suspension, that paragraph does not teach that the formation of fine surface irregularities both uniformly and in a large quantity on the surface of the water-absorbent resin particles is the necessary result of using said surfactant having a HLB value of 6 of higher in an implicit appropriate amount, but rather suggests that additional measures are required, which measures, however, are not specified.

In any event, no evidence such as experimental results, patent or non patent literature, was provided demonstrating that the selection of the surfactant or its amount would be a key element towards the achievement of a level of irregularities higher than in examples 1 to 4. Neither did the respondent provide technical explanations linking the structure of the surfactant and its amount to the formation of irregularities on the surface of the particles in order to render credible that an appropriate selection of the type of surfactant within those having a HLB of 6 or higher and its amount would allow the skilled person to achieve a higher level of irregularities on the surface of the water-absorbing resin particles.

Even if, to the benefit of the respondent, it were accepted that the type of surfactant within those having a HLB of 6 of higher and its amount are key elements to obtain the required level of irregularities on the surface of the water-absorbent particles, no indication was given as to which structural elements of the surfactant or its amount would have been known to the skilled person to be most likely to achieve a higher level of irregularities on the surface of the water-absorbent resin particles. Evidence that this would be part of the common general knowledge was not provided either. In any event, the skilled person would note that examples 1 to 4, despite the use of sorbitan monolaurate with a HLB of 8.6, which appears to be one of the most preferred surfactants (paragraph [0060], line 37; paragraph [0061], lines 50-53), in an amount of 0.45 parts by weight based on 100 parts by weight of the aqueous liquid, also corresponding to what appears to be a preferred amount (paragraph [0062], lines 57-58), lead to water-absorbent resin particles having a specific surface of no more than 0.158 $m^2/g$.

In the absence of known selection criteria for the surfactant, which can be selected from a large group as exemplified in paragraph [0061] of the specification, and its amount, the skilled person, wishing to increase the level of irregularities on the surface of the water-absorbent resin particles in order to obtain a specific surface area of up to 0.5 $m^2/g$ would be left to develop a methodology for said selection, so as to achieve with a reasonable amount of effort such result. This has not been shown to be trivial, even when starting from examples 1 to 4, since the process of forming the water-absorbent particles of claim 1 which are taught with methods 1 to 3 do not consist of a

reversed-phase suspension polymerization, but require additional steps, also including the use of multiple components.

6. The respondent citing paragraph [0056] submitted at the oral proceedings that the skilled person would select the surfactant and its amount so as to obtain an interface between the aqueous liquid and the oily liquid which is strongly activated. Paragraph [0056], however, merely states that this is the case of a reversed-phase suspension polymerization using a surfactant. The respondent did not provide any submission as to why it would be relevant to the selection of a surfactant which is different from that used in examples 1 to 4 or to its amount in order to increase the level of surface irregularities.

7. The respondent submitted in addition at the oral proceedings that the level of irregularities on the surface of the water-absorbent resin particles obtained using a reversed-phase suspension polymerization would be dependent on the interfacial tension, i.e. the tension at the oil/aqueous solution interface. This would be known to the skilled person. In the absence of evidence showing the knowledge of the skilled person in this respect, in particular in relation to the production of water-absorbent resin particles, that argument constitutes a mere allegation devoid of any concrete support and is not persuasive.

8. The respondent submitted in addition that the claimed range of 0.14 $m^2/g$ to 0.5 $m^2/g$ cannot be considered a broad range, reference being made to document D6 which would concern the production of water-absorbent resin particles using a reversed-phase suspension polymerization. The respondent pointed out that the

upper value of the specific surface area of the particles produced in D6 is not subject to any particular limitations. It would be indicated in D6 to be limited in practice to 5 $m^2/g$ or less because of the feasibility limits related to the porosity of the water-absorbent resin particles. The specific surface area would preferably be 0.07-5 $m^2/g$, and more preferably 0.10-3 $m^2/g$.

This is not convincing. D6 is a patent application belonging to the respondent. The mere indication that the range of specific surface area defined in operative claim 1 is not broad in comparison to that described in D6 is *per se* not decisive, as the present Board did not assess whether the teaching of D6 would be sufficient to prepare the water-absorbent resin particles disclosed therein. The point is rather, as explained above, whether taking into account the examples, the additional teaching provided in the patent in suit and the common general knowledge, the skilled person knows which measures should be taken to obtain over the full scope of operative claim 1 particles having the required specific surface area.

Moreover, the respondent did not indicate which technical measures described in D6 would be relevant to prepare water-absorbent resin particles as defined in claim 1 whose specific surface area is up to 0.5 $m^2/g$, let alone whether such measures would be identified in D6 for the purpose of adjusting the specific surface area to that level or be in that respect part of the common general knowledge. In any event, D6 is not referred to in the patent in suit.

9. In decision T 435/91 (OJ EPO 1995, 188), the Board, in the context of a functional definition of a component

included in a claim, based its decision on the general legal principle "that the protection conferred by a patent should correspond to the technical contribution to the art made by the disclosure of the invention described therein, which excludes the patent monopoly from being extended to subject-matter which, after reading the patent specification, would still not be at the disposal of the skilled person". The Board added that "the available information must enable the skilled person to achieve the envisaged result within the whole ambit of the claim containing the respective "functional" definition without undue difficulty, and that therefore the description with or without the relevant common general knowledge must provide a fully self-sufficient technical concept as to how this result is to be achieved" (point 2.2.1 of the reasons, fourth and fifth paragraphs). It is also established case law that the same principle applies when the claim contains a parametric definition when the subject-matter cannot be expressed only in terms of structural features.

It follows, however, from the above that the patent in suit lacks a teaching on how to prepare the water-absorbent resin particles of claim 1 whose specific surface area covers the major portion of the domain defined in claim 1. Under these conditions, the burden of proof to demonstrate that the present invention can be carried out over the whole breadth of claim 1 rests on the patent proprietor (here respondent), which failed to demonstrate that this information gap could be filled by the skilled person using the general common knowledge and reasonable effort.

10. On that basis, it is concluded that the subject-matter of claim 1 does not meet the requirement of sufficiency of disclosure. Thus, the ground of opposition under

Article 100(b) EPC prejudices the maintenance of the patent as granted. Therefore, the respondent's main request is not allowable.

*Auxiliary requests I to XVI*

11. It was not contested at the oral proceedings that the amendments inserted in these requests, which do not concern the feature defining the specific surface area (see above section VII of the Summary of Facts and Submissions), have no impact on the assessment of sufficiency of disclosure to be made in relation to the main request. The respondent confirmed that their arguments in relation to sufficiency of disclosure of the subject-matter of auxiliary requests I to XVI were the same as for the subject-matter of the main request. On that basis, the same conclusion as for the main request applies to auxiliary request I to XVI which are therefore also not allowable.

12. Since the parties' submissions in relation to the above particular issue of sufficiency of disclosure did not rely upon documents D8, D9, D9a, Dl0, D11, D11a, D12 to D20 and none of the claim requests was allowable in view of this objection, the question as to whether these documents should be admitted into the proceedings and additional objections raised against those claim requests were convincing could be left unanswered.

**Order**

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

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chairman:


D. Hampe D. Marquis

Decision electronically authenticated