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**Datasheet for the decision
of 15 January 2019**

Case Number: T 0169/16 - 3.3.03

Application Number: 07858120.4

Publication Number: 2222739

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Language of the proceedings: EN

Title of invention:
POLYMERIC THICKENER COMPOSITION

Patent Proprietor:
S.P.C.M. SA

Opponent:
Societe D'Exploitation De Produits Pour Les
Industries Chimiques Seppic

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - (no)



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Case Number: T 0169/16 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 15 January 2019

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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 17 November
2015 revoking European patent No. 2222739
pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman D. Semino
Members: D. Marquis
 R. Cramer

Summary of Facts and Submissions

I. The appeal lies with the decision of the opposition division posted on 17 November 2015 revoking European patent No. 2 222 739.

II. The European patent was granted on the basis of 9 claims, claims 1 and 3 reading as follows:

"1 . Polymeric thickener composition comprising at least one water-swellaible crosslinked copolymer derived from polymerization of a mixture having a pH of 3 to 5 comprising:

(a) acrylamide,

(b) an acrylamidoalkylsulfonic acid and/or a salt thereof,

(c) an amine-based polyfunctional crosslinking agent comprising at least three allylic functions, and a chain transfer agent, wherein the crosslinking agent is triallylamine and is contained in the polymerization mixture in an amount of more than 2 millimoles per mole of total monomer units and up to 10 millimoles per mole of total monomer units".

"3. Process for making a polymeric thickener according to any of claims 1 to 2, wherein the water-swellaible crosslinked copolymer is prepared by inverse emulsion polymerization from a mixture comprising (a) acrylamide, (b) an acrylamidoalkylsulfonic acid and/or a salt thereof and (c) an amine based polyfunctional crosslinking agent comprising at least three allylic functions, wherein the crosslinking agent is triallylamine and is added to the polymerization mixture in an amount of more than 2 millimoles per mole of total monomer units and up to 10 millimoles per mole of total monomer units and wherein the polymerization

is carried out at a pH of 3 to 5 in the presence of a transfer agent".

- III. A notice of opposition was filed in which revocation of the patent was requested.
- IV. During opposition proceedings, the following documents *inter alia* were cited:
D1: EP 1152022 A1
D7: EP 0503853 A2
- V. The decision of the opposition division to revoke the patent was announced at the oral proceedings on 4 November 2015. The decision was based on the claims as granted (main request) and on the first to fourth auxiliary requests filed with letter of 3 September 2015.

The first auxiliary request differed from the main request in that in claim 1 the polymeric thickener composition comprising at least one water-swellable crosslinked copolymer was defined as being derived from "inverse emulsion" polymerization.

The claims of the second auxiliary request corresponded to the claims of the main request from which the product claims (claims 1 and 2) and the use claims (claims 8 and 9) as well as the reference in the process claims to the product claims were deleted.

In the third auxiliary request claims 1 and 3 of the main request were amended in that the range of pH of 3 to 5 was limited to "3 to 4.5".

The claims of the fourth auxiliary request corresponded to the claims of the third auxiliary request with the

same deletions as in the second auxiliary request.

VI. As far as it is relevant to the present decision, the decision of the opposition division can be summarized as follows:

- (a) Document D1, and in particular its example 4, represented the closest prior art. D1 belonged to the same technical field as the patent in suit and dealt with the same issue of providing useful thickeners at low pH values (below 4). D7 was less relevant than D1 as closest prior art as D7 was restricted to pH values of higher than 4. D7 was therefore not the closest prior art.
- (b) The polymer according to example 4 of D1 was made of the same monomers as that of the patent in suit. In particular, example 4 of D1 disclosed the preparation of a polymer of acrylamide, acrylamidoalkylsulfonic acid (AMPS) and triallylamine. Claim 1 of the main request however further defined the polymer thickener compositions by the pH during polymerization, the amount of triallylamine used as crosslinking agent and the presence of a chain transfer agent.
- (c) With respect to the pH, it was clearly stated in D1 that the polymerization carried out in example 4 was performed as in example 3. Since example 3 mentioned that the pH during polymerization was adjusted to a value of 5, there was no reason to doubt that the same value was used in the polymerization of example 4. The polymerization reaction in example 4 was therefore carried out at a pH that was in the range of 3 to 5 according to

the main request.

- (d) The amount of triallylamine could be determined on the basis of the information contained in D1. Among the components present in the polymerization mixture of example 4 of D1, AMPS was the only component for which the amount used during polymerization was not explicitly disclosed. In particular, the amount of AMPS used to adjust the pH of the reaction mixture to a value of 5 during the polymerization reaction was omitted in D1. It could however be inferred from the amount of triallylamine disclosed in example 4 that an additional 7.4 mmol of AMPS was needed in example 4 to adjust the pH of the reaction mixture. After taking that amount of additional AMPS monomer into account in the calculation of the relative amount of triallylamine, the amount of triallylamine per mol of total monomer units could be calculated to be 2.5 mmol. That value was in the range of 2-10 mmol per mol of total monomer units as defined in the main request.
- (e) The polymeric thickener composition of the main request therefore only differed from the thickener composition of example 4 of D1 in that a chain transfer agent was used in the course of the polymerization process.
- (f) The patent in suit did not comprise any example that demonstrated the stability of the viscosity of the claimed polymers over a wide range of pH. The patent in suit only demonstrated that the produced polymers showed a viscosity that was high enough to make them useful as thickeners at a pH of 3. It was alleged in the patent that the process was

"advantageously carried out in the presence of a chain transfer agent" but these advantages were not specified any further. Since the patent proprietor had admitted that chain transfer agents were not essential for accomplishing the effects of the invention, the problem solved was to provide further polymer thickeners for cosmetic applications that were useful at low pH.

- (g) The use of chain transfer agents was customary in the art and was contemplated in D1 itself. Advantages and effects of chain transfer agents in the preparation of polymers were already known in the art. The claims of the main request did therefore not involve an inventive step.
- (h) The characterization of the claimed subject matter by the fact that the polymer was obtained by an inverse emulsion polymerization did not render claim 1 inventive as it was already disclosed in D1. For this reason, the first and second auxiliary requests lacked an inventive step for the same reasons as the main request.
- (i) Claim 1 of the third and fourth auxiliary requests was further defined by the limitation of the pH of the reaction mixture to a range of 3 to 4.5. This range of pH was derived from a selection among the ranges indicated in claim 11 as originally filed. The combination of that selected range with triallylamine as crosslinking agent however constituted a multiple selection that was not disclosed as such in the application as originally filed. The third and fourth auxiliary requests contravened therefore the requirements of Article 123(2) EPC.

- VII. The proprietor (appellant) lodged an appeal against that decision. With the statement of grounds of appeal the auxiliary requests on which the decision was based were filed again by the appellant.
- VIII. The respondent provided a reply to the statement of grounds of appeal.
- IX. In a communication sent in preparation of oral proceedings, the Board summarised the points to be dealt with and provided a preliminary view on the disputed issues.
- X. Oral proceedings were held on 15 January 2019.
- XI. The arguments provided by the appellant, as far as relevant to the present decision, can be summarised as follows:

Main request

Inventive step

- (a) D1 was not a document that could reasonably be chosen as the closest prior art. The closest prior art for assessing inventive step was a prior art document disclosing subject matter conceived for the same purpose or aiming at the same objective as the claimed invention and having the most relevant technical features in common. D1 did not represent the closest prior art since the patent and D1 were concerned with completely different objectives and consequently aimed at the provision of different effects.

- (b) In particular, the purpose or effect achieved by the subject matter of the patent in suit was that the thickener compositions provided viscosity stability over a wide range of pH, were less sensitive to oxidation and had minimum residual monomer contents.
- (c) While D1 related to the same general technical field (cosmetic thickened compositions) as that of the patent in suit, that alone was not sufficient to establish that it was the closest prior art. In particular, D1 did not specifically address the pH stability of the thickening compositions. In that respect, the isolated statement in paragraph 57 of D1 about the stability of the viscosity of the composition of example 4 at a pH of between 3 and 8 was not supported by any experimental evidence. Also, the truthfulness of that statement, in particular in view of the mistakes reported in the viscosities disclosed, was questionable. The reference to the pH stability made in the context of the compositions of the prior art document WO 93/07856 cited in the description of D1 was not applicable to the thickening compositions of D1. Also, D1 did not mention the resistance to oxidation nor the residual monomer content of the thickening compositions disclosed. The purpose and objectives set out in D1 were therefore unrelated to those of the patent in suit.
- (d) The thickener compositions disclosed in D1 differed also significantly from those claimed in the patent in suit. In particular, the claimed thickener compositions of the main request differed from that according to example 4 of D1 not only in the presence of a chain transfer agent, but also in the

pH during polymerization and in the amount of crosslinking agent relative to the monomer units present during polymerization. With respect to the pH during polymerization, example 4 did not disclose its value and it was doubtful whether it was identical to that disclosed in example 3. Even if a pH of 5 as disclosed in example 3 was adopted for example 4, the relative amount of triallylamine used in example 4 was unknown since the additional amount of AMPS required for adjusting the pH was not provided in that example. In that respect, the calculation made by the opposition division in the contested decision was based on assumptions and was thus mere speculation. The amount of triallylamine in the polymerization mixture of example 4 of D1 was therefore not according to claim 1 of the main request.

- (e) With respect to the general teaching of the patent in suit, it was shown that the advantageous properties of the claimed thickener compositions were only achieved by selecting specific monomers and a crosslinking agent which then had to be polymerised under specific pH conditions and with a specific amount of crosslinking agent. By contrast, D1 did not teach the critical selection of AMPS as a monomer and its combination with triallylamine and their polymerization under critical pH conditions. Thus, D1 did not give any hint to any of the crucial selections that had to be made according to the invention of the patent in suit.

- (f) Under these circumstances, the skilled person, taking into account all the available information on the technical context of the claimed invention, would not have considered D1 to be a reasonable

starting point for the assessment of inventive step. On that basis, the reasoning of the opposition division was flawed and an inventive step should be acknowledged.

First and second auxiliary requests

- (g) The same arguments for inventive step as outlined for the main request applied to the first and second auxiliary requests.

Third and fourth auxiliary requests

- (h) The examples of the patent in suit made it credible that the selection of the pH during polymerization in the range of 3 to 4.5 was advantageous over the value of 5 disclosed in D1. Examples X3 and P1 of the patent in suit in particular showed an effect from a reduction of pH of from 6 to 3. No evidence had been provided showing that that effect was not obtained. D1 did not contain a teaching that led to the range of pH according to the third and fourth auxiliary requests. Claim 1 of the third and fourth auxiliary requests was inventive over D1.

- XII. The arguments of the respondent, as far as relevant to the present decision, can be summarised as follows:

Main request

Inventive step

- (a) D1 represented the closest prior art. D1 was in the same technical field as the patent in suit, namely the preparation of thickener compositions for cosmetic and pharmaceutical applications. D1 also

mentioned the stability of the viscosity over a wide range of pH for the composition of example 4. D1 thus had the same objective as the patent in suit. For these reasons, D1 was a reasonable closest prior art.

- (b) The thickener of example 4 of D1 was prepared from acrylamide, AMPS and triallylamine as crosslinking agent. It was clear from the description of that example that the thickener was obtained by the same process and under the same conditions as those disclosed for example 3 with the sole difference that 1.01 g of triallylamine was used instead of 1.31 g of methylene bis(acrylamide). Since example 3 described the step of adjusting the pH of the reaction mixture to a value of 5, it was clear that the same value was used in example 4.
- (c) D1 also taught the use of a specific amount of crosslinking agent relative to the monomer content. In the case of example 4, the amount of triallylamine was calculated to be 2.70 millimoles per mole of total monomers units. That amount was within the range defining claim 1 of the main request. Even if the amount of AMPS had to be adapted to the amount of triallylamine used in example 1, that would not bring the relative amount of triallylamine outside the claimed range.
- (d) The value of pH during polymerization and the use of triallylamine as crosslinking agent were thus disclosed features of the composition of example 4 of D1. The thickener composition of claim 1 of the main request only differed from that of example 4 of D1 in that a chain transfer agent was used during polymerization. Given the number of features

the thickener composition of example 4 of D1 had in common with claim 1 of the main request, there was no doubt that D1 represented the closest prior art. Therefore both the selection of the closest prior art and the identification of the difference in the contested decision were correct as was the rest of the reasoning therein which led to the conclusion of lack of inventive step.

First and second auxiliary requests

- (e) The same arguments for inventive step as outlined for the main request applied to the first and second auxiliary requests.

Third and fourth auxiliary requests

- (f) Examples P1 and X3 provided in the patent in suit only concerned thickener compositions obtained at values of pH of 3 and 6. These examples therefore did not show an effect resulting from the limitation of pH to the range of 3 to 4.5 in the patent in suit as compared to the value of pH of 5 in D1. The limitation of the range of pH provided in the third and fourth auxiliary requests therefore did not render these requests inventive over D1.

XIII. The appellant requested that the decision under appeal be set aside and the patent be maintained as granted (main request), or alternatively be maintained in amended form according to one of the first to fourth auxiliary requests, filed with the letter of 3 September 2015 and resubmitted with the statement setting out the grounds of appeal.

XIV. The respondent requested that the appeal be dismissed.

Reasons for the Decision

Main request

1. Inventive step

1.1 Closest prior art

1.1.1 The opposition division based its decision on inventive step on the selection of document D1 as the document representing the closest prior art. In particular, D1 was selected as the closest prior art on the grounds that it related to the same technical field, that it addressed a technical problem that was similar to that of the patent in suit and that the composition of example 4 of that document had a minimum number of differences with respect to the claimed subject matter (point 5.1 of the decision of the opposition division).

1.1.2 Starting from D1 and especially from its example 4 as the closest prior art, the opposition division arrived at the conclusion that the solution to the problem of providing further polymer thickeners for cosmetic applications that were useful at low pH, namely the use of a chain transfer agent during polymerization, was obvious.

1.1.3 The central argument of the appellant, insofar as the decision of the opposition division on inventive step is concerned, was limited to the question of whether document D1 was the closest prior art. In that regard, it was held by the appellant that the choice of D1 as the closest prior art in the contested decision was not a reasonable one because that choice relied on factual

assumptions that did not prove to be accurate. In particular, the appellant argued that document D1 was not concerned with the same technical problem as that of the patent in suit since the stability of the viscosity of the claimed polymeric thickener compositions over a wide range of pH was not properly addressed in D1. It was also contended that the composition of example 4 of D1 differed significantly from the claimed subject matter as in addition to the absence of a chain transfer agent, example 4 did not explicitly disclose the value of the pH used during polymerization and did not disclose an amount in crosslinking agent that was according to claim 1 of the main request.

- 1.1.4 With respect to the choice of the document representing the closest prior art, the Boards have consistently pointed out (Case Law of the Boards of Appeal, 8th edition, I.D.3.1, second paragraph) that "the closest prior art for assessing inventive step is normally a prior art document disclosing subject matter conceived for the same purpose or aiming at the same objective as the claimed invention and having the most relevant technical features in common, i.e. requiring the minimum of structural modifications. A further criterion for the selection of the most promising starting point is the similarity of technical problem".
- 1.1.5 In the present case, the questions posed were whether D1 addressed the same technical problem and whether in the case of the composition of example 4 of that document, both the pH during polymerization and the mole amount of triallylamine as crosslinking agent relative to the total monomer units were according to claim 1 of the main request.

- 1.1.6 With regard to the technical problem, the objective of the patent in suit was that of providing polymeric thickener compositions comprising at least one water-swallowable crosslinked copolymer and their use as a thickener in cosmetic, dermatologic and pharmaceutical formulations (paragraph 1). More specifically, the polymeric thickener compositions were meant to provide stability of the viscosity to formulations over a wide range of pH (e.g. from 1 to 12 or 3 to 9) and also in the presence of electrolytes (paragraphs 5, 7 and 14). These polymeric thickener compositions are based on copolymer of (a) acrylamide, (b) an acrylamidoalkylsulfonic acid and/or a salt thereof; and (c) an amine-based polyfunctional crosslinking agent comprising at least three allylic functions and a chain transfer agent, wherein the crosslinking agent is triallylamine (paragraph 16).
- 1.1.7 Document D1 concerns inverse water-in-oil latices, their process of preparation and their application as thickeners and/or emulsifiers for skincare and haircare products and for the manufacture of cosmetic, dermocosmetic, dermopharmaceutical or pharmaceutical preparations (paragraph 1). In that respect, it is apparent that both D1 and the patent in suit concern thickeners for the same type of applications, namely cosmetic, dermatologic and pharmaceutical. Among the inverse water-in-oil latices of D1 are copolymers of acrylamide with a monomer bearing a strong acid functionality and a crosslinking agent (claim 1). The compositions of D1 are thus overall also based on the same type of monomers as in the patent in suit.
- 1.1.8 While the main objective according to D1 is that of providing novel polymer emulsions which can be better tolerated by the skin, causing less irritations

(paragraphs 3, 4 and 40), it is clear from the examples of that document that the viscosity of the compositions is an important parameter for the characterization of their thickening properties, as highlighted in each of the examples 1 to 5. That is especially highlighted in the case of the composition of example 4 in which the stability of the thickening properties of the composition formulated as a gel cream is reported as a function of temperature, UV irradiation and pH (paragraphs 54 to 57). The part concerning the influence of the pH on the viscosity in paragraph 57 of D1 discloses that the viscosity of the gel cream obtained from the composition of example 4 is very stable over a range of pH of 3 to 8, which is particularly relevant as it corresponds to the main objective of the patent in suit. The fact that the statement in paragraph 57 of D1 is described in the context of only one exemplary formulation does not render that statement less relevant when assessing the overall objective sought out in D1. On the contrary, the composition of example 4, which is disclosed to be an inverse latex of a copolymer of AMPS and acrylamide crosslinked by triallylamine in Marcol™ 52 (paragraph 47 with reference to paragraph 45), is also a composition that is representative of the teaching of D1 since it is one of the compositions that causes the least irritation to the skin (paragraphs 63 and 64). The statement made in paragraph 57 does not lose its validity simply because no viscosity data was provided to support it, especially because there is no information in D1 that would cast doubt on that statement and because no evidence was provided by the appellant that showed that that statement was not accurate. In that regard, the alleged inconsistency raised by the appellant between the viscosity values disclosed in paragraphs 47 and 55 for the composition

of example 4 is not relevant for the statement of paragraph 57 because that inconsistency is not directly related to viscosity values measured under different pH conditions.

- 1.1.9 The Board concludes from the above that the copolymer thickener of example 4 can be seen as being representative of the overall teaching of D1 and that the stability of the viscosity of thickeners over a wide pH range is a property that is explicitly addressed in that example of D1. Under these circumstances, the Board concludes that D1 and in particular the composition of example 4 can be seen as as being conceived for the same purpose or aiming at the same objective as that of the patent in suit.
- 1.1.10 The preparation of the thickener composition of example 4 is discussed in paragraph 47. That passage explicitly refers to the details of the polymerization according to example 3, as the preparation of the composition of example 4 is said to be carried out as in Example 3 but replacing the 0.131 g of methylenebis(acrylamide) with 1.01 g of triallylamine, by means of which the desired water-in-oil emulsion is obtained. That polymerization of example 3 takes place in three steps wherein the first step consists in the preparation of an aqueous monomer solution, the second step consists in the preparation of an organic oil phase which is then added and reacted to the aqueous monomer solution in the third step (paragraph 45). It is at the end of the first step that the pH of the aqueous monomer solution is said to be adjusted to 5.0 by the addition of 0.4g of AMPS. Since the polymerization in example 4 is explicitly said to have been performed as in example 3, there is no reason to conclude that the pH in example 4 was adjusted to any other value than 5.0. Also, D1 does

not disclose a pH value other than 5.0 in all of its examples.

- 1.1.11 As to the amount of triallylamine per mole of total monomer present in the polymer mixture of example 4, the opposition division established in its decision that its value depended on the amount of AMPS that had been used to adjust the pH to 5 during polymerization. The opposition division also found that even taking into account the higher amount of AMPS needed to adjust the pH to 5.0 in the case of example 4 as compared to example 3, the amount of triallylamine per mole of total monomer present in the polymer mixture, that was calculated to be 2.5 mmol, was still within the range of more than 2 mmol and up to 10 mmol according to claim 1 of the main request (passage bridging pages 7 and 8 of the contested decision). With respect to that calculation, while it is true, as argued by the appellant, that the amount of AMPS added to the aqueous monomer solution to adjust its pH to 5.0 is not provided in example 4, the opposition division has shown that its amount can be determined by comparison to the data provided in example 3, upon which the polymerization of example 4 is said to be based. The appellant argued that the calculation of the amount of triallylamine by the opposition division relied on an erroneous assumption, but did not show in which respect the calculation was wrong, nor did he contest any of the steps of the calculation provided in the impugned decision. On the basis of the calculation of the opposition division, the Board finds that it can be directly and unambiguously derived from the information made available in D1, that the amount of triallylamine per mole of total monomer present in the polymer mixture of example 4 is according to claim 1 of the main request.

1.1.12 The Board concludes from the above that D1 addresses the same technical problem as that of the patent in suit and that the copolymer thickener composition of example 4, which was chosen as the starting point within D1 to assess inventive step, was prepared by polymerization at a pH of 5.0 and in the presence of triallylamine as crosslinking agent in an amount that falls within the range according to claim 1 of the main request. Under these circumstances, the Board concludes that the choice of D1 as the closest prior art and in particular its example 4, was a reasonable one and the identification of the chain transfer agent as the only distinguishing feature in the contested decision was correct.

1.1.13 These two points were the only ones concerning inventive step that were contested by the appellant in appeal. In fact, the conclusions of the opposition division on inventive step resulting from the choice of D1 as the closest prior art were not put into question by the appellant once the presence of a chain transfer agent had been identified as the distinguishing feature. There is thus no reason for the Board to set aside the decision of the opposition division on inventive step once it is concluded that the only contested points are correct. The main request therefore does not meet the requirements of Article 56 EPC.

First and second auxiliary requests

2. Inventive step

2.1 The first auxiliary request differs from the main request in that in claim 1 the polymeric thickener

composition comprising at least one water-swellable crosslinked copolymer is defined as being derived from "inverse emulsion" polymerization.

- 2.2 Since D1 however only concerns inverse latices (paragraphs 1, 5 and claim 1) that are by definition produced by inverse emulsion, the amendment made to claim 1 of the first auxiliary request does not constitute a further distinguishing feature over D1 and its example 4 chosen as starting point for the assessment of inventive step. That was not contested by the appellant at the oral proceedings, nor were any specific arguments provided with regard to that amendment other than the arguments provided for the main request.
- 2.3 Under these circumstances, the Board comes to the conclusion that D1 remains the closest prior art for the first auxiliary request and that that request does not meet the requirements of Article 56 EPC for the same reasons as the main request.
- 2.4 The claims of the second auxiliary request correspond to the claims of the main request from which the product claims (claims 1 and 2) and the use claims (claims 8 and 9) are deleted. Claim 1 of the second auxiliary request corresponds to claim 3 of the main request.
- 2.5 Claim 1 of the second auxiliary request is thus directed to a process for making a polymer thickener that has the same definition as claim 1 of the main request. No separate arguments were provided by the appellant with regard to inventive step of the second auxiliary request in addition to those submitted for the main request. D1 remains therefore the closest

prior art for the second auxiliary request and for the same reasons as for the main request, the second auxiliary request does not meet the requirements of Article 56 EPC.

Third and fourth auxiliary requests

3. Inventive step

3.1 The third auxiliary request differs from the main request in that the pH applied during polymerization was limited to the range of "3 to 4.5" in claims 1 and 3.

3.2 That limitation of the claims creates, in addition to the presence of a chain transfer agent during polymerization, a second distinguishing feature over the composition of example 4 of D1. With respect to that distinguishing feature, the patent in suit teaches that it results in optimum thickening effects without providing any further detail about the extent of the effect (paragraph 31). No additional effect resulting from the combination of the chain transfer agent and the range of pH during polymerization is disclosed in the patent in suit. In the examples, the optimum thickening effects are related to the stability of the viscosity of the composition at a pH of 3.0 and to the residual acrylamide monomer content in the composition (Table 1, page 6).

3.3 It has already been shown above that the composition according to example 4 of D1 is concerned with the stability of the viscosity in a range of pH of 3 to 8. As to the lowering of the residual acrylamide monomer content in the composition discussed in the patent in suit, it is taught as being a way of lowering the

amounts of unhealthy or detrimental substances that could be contained in the composition and that are disadvantageous for cosmetic or pharmaceutical applications (paragraph 5 of the patent in suit). That objective is in essence related to the objective of D1 of providing thickening compositions for cosmetic and pharmaceutical applications (paragraph 1) causing less irritation (paragraphs 40 and 58 to 64) and being better tolerated by the skin (paragraph 4). In that regard, the limitation of the range of pH used during polymerization in the third auxiliary request does not justify a change of closest prior art document.

- 3.4 The appellant argued that a comparison, in Table 1, of the polymeric thickener composition P1, obtained by polymerization at a pH of 3 and which is according to the third auxiliary request, with composition X3, obtained by polymerization at a pH of 6, showed an effect in favour of the claimed compositions. While Table 1 shows that composition P1 displays a higher viscosity (21000 cps) at a pH of 3 and contains less residual acrylamide monomer (2 ppm) than composition X3 (viscosity of 15000 cps and residual acrylamide monomer content of 6 ppm), no data was provided that showed that these effects would also be observed if the polymeric thickener compositions were prepared under a pH selected at the edge of the claimed range (4.5) over a pH of 5 as disclosed in D1. It remains therefore unknown whether the effects resulting from lowering the pH of polymerization from 6 to 3 would still be observed when comparing compositions obtained at a pH of 4.5 chosen to delimit the claimed range in the third auxiliary request and a pH of 5 as disclosed in D1. It is noted in this respect that large variations of viscosities (from 6000 cps to 21000 cps) and residual acrylamide monomer contents (from 2 to 15 ppm) are

reported for all the examples of Table 1 of the patent in suit, which renders an extrapolation of the results at pH 3 and 6 not reliable in the absence of additional data. Since the appellant chose to delimit the subject matter of the third auxiliary request with respect to the closest prior art by defining a pH range of 3 to 4.5, the onus of showing that the alleged technical effect was present with respect to the closest prior art and over the full range was on the appellant. In the absence of evidence of the alleged effect, that effect cannot be taken into account for the formulation of the technical problem solved over the closest prior art. Under these circumstances, the technical problem with respect of the third auxiliary request is the same as that formulated by the opposition division in the case of the main request, namely provision of further polymer thickeners or further processes for making the same for cosmetic applications that are useful at low pH. In this respect, it is additionally noted that no argument was provided that would establish the presence of an effect resulting from the combined use of a chain transfer agent and the selection of a pH between 3 and 4.5 in the polymerization disclosed in claims 1 and 3 of the third auxiliary request.

3.5 It remains to be determined whether the solution to that problem provided in the patent in suit, namely the use of a chain transfer agent and the polymerization in a pH range of 3 to 4.5 as two independent measures, is inventive in view of the prior art.

3.6 With respect to the chain transfer agent, the same is valid as for the main request according to the decision of the opposition division. In particular, paragraph 33 of D1 already discloses that the inverse latices may contain a chain transfer agent and the use of chain

transfer agent in emulsion polymerization is well known in the art, so that this feature does not justify an inventive step.

3.7 With regard to the pH during polymerization, it is true that the closest prior art D1 does not provide any other teaching than the value of 5 used in its examples. The pH of the reacting mixture is however one of the process parameters the skilled person has to adjust to perform an emulsion polymerization with reactive emulsifiers such as with AMPS that is used in D1 and the patent in suit. A minor arbitrary variation of this parameter from 5 to 4.5 is within the routine activity of the skilled person aiming at further products or processes and cannot justify the presence of an inventive step.

3.8 The Board concludes from the above that claim 1 and claim 3 of the third auxiliary request do not meet the requirements of Article 56 EPC.

3.9 The claims of the fourth auxiliary request correspond to the claims of the third auxiliary request from which the product claims (claims 1 and 2) and the use claims (claims 8 and 9) are deleted. Claim 1 of the fourth auxiliary request is directed to a process for making a polymer thickener that has the same definition as claim 1 of the third auxiliary request. Claim 1 of the fourth auxiliary request essentially corresponds to claim 3 of the third auxiliary request with some redactional amendments to remove a dependency towards the product claim 1. No separate arguments were provided by the appellant with regard to inventive step of the fourth auxiliary request in addition to the arguments already submitted for the third auxiliary request. D1 remains therefore the closest prior art for the fourth

auxiliary request and for the same reasons as for the third auxiliary request, the fourth auxiliary request does not meet the requirements of Article 56 EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



B. ter Heijden

D. Semino

Decision electronically authenticated