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D E C I S I O N
of 26 August 1999

Case Number: T 0085/96 - 3.3.3

Application Number: 88303912.5

Publication Number: 0289338

IPC: C08F 6/00

Language of the proceedings: EN

Title of invention:

Hydrophilic polymer and method for production

Patentee:

Nippon Shokubai Co., Ltd.

Opponent:

The Dow Chemical Company

Headword:

-

Relevant legal provisions:

EPC Art. 54, 56, 83

Keyword:

"Sufficient disclosure (yes) - no undue burden or inventive activity"

"Novelty (yes) - no clear and unambiguous disclosure"

"Inventive step (yes) - combination of claimed features not derivable from state of the art"

Decisions cited:

T 0192/82, T 0188/83, T 0292/85, T 0606/89, G 0009/91,
G 0010/91

Catchword:

-



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Boards of Appeal

Chambres de recours

Case Number: T 0085/96 - 3.3.3

D E C I S I O N
of the Technical Board of Appeal 3.3.3
of 26 August 1999

Appellant: The Dow Chemical Company
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Decision under appeal: Interlocutory decision of the Opposition Division
of the European Patent Office posted 28 November
1995 concerning maintenance of European patent
No. 0 289 338 in amended form.

Composition of the Board:

Chairman: C. Gérardin

Members: B. ter Laan
J. De Preter

Summary of Facts and Submissions

- I. Mention of the grant of European patent No. 0 289 338 in respect of European patent application No. 88 303 912.5, filed on 29 April 1988, claiming priority from an earlier application in Japan (104764/87 of 30 April 1987), was announced on 16 October 1991, on the basis of twelve claims, Claim 1 reading:

"A method for the production of a hydrophilic polymer having a small residual monomer content from a hydrated gel polymer by drying the hydrated gel polymer characterised in that the drying is achieved by contacting the gel polymer with a gas containing steam and having a dew point in the range of 50° to 100°C at a temperature in the range of 80° to 250°C."

Claims 2 to 12 referred to preferred embodiments of the method according to Claim 1.

- II. On 8 July 1992 a Notice of Opposition against the granted patent was filed, in which the revocation of the patent in its entirety was requested on the grounds set out in Article 100(a) and (b) EPC. The opposition was, *inter alia*, supported by the following documents:

D1: GB-A-2 146 343,

D2: R. F. Eaton and F. G. Willeboordse - "Evaporation behaviour of Organic Cosolvents in Water-borne formulations" (Paper presented at the 1979 Western Coatings Society Symposium, San Francisco, February 28 to March 2, 1979),

D3: Paul W. Dillon - "Application of Critical Relative Humidity, An Evaporation Analogue of Azeotropy, to the Drying of Water-Borne Coatings" (Paper presented at the 55th Annual Meeting of the Federation of Societies for Coatings Technology in Houston, Texas, October 27, 1977) and

D8: US-A-4 132 844

III. By an interlocutory decision delivered on 14 November 1995 and issued in writing on 28 November 1995, the Opposition Division held that there were no grounds of opposition prejudicing the maintenance of the patent in amended form, i.e. on the basis of Claims 1 to 11 as filed by letter of 3 May 1994, Claim 1 reading:

"A method for the production of a hydrophilic polymer having a small residual monomer content from a hydrated gel polymer by drying the hydrated gel polymer characterised in that the drying is achieved by contacting the gel polymer with a gas containing steam and having a dew point in the range of 50° to 100°C at a temperature in the range of 100° to 180°C."

Claims 2 to 11 referred to preferred embodiments of the method according to Claim 1.

The Opposition Division held that

- (a) in view of the examples, the invention was disclosed sufficiently clearly,
- (b) the claimed subject-matter was novel since none of the cited documents mentioned the combination of

features as now required,

(c) regarding inventive step, the closest document was D8, since, like the patent in suit, it addressed the problem of reducing the residual monomer content in a hydrophilic polymer. D8, either taken by itself or in combination with any of the other documents on file, did not teach to dry the polymer under the specific conditions as now specified, so that the claimed subject-matter was inventive.

IV. On 26 January 1996 the Appellant (Opponent) lodged an appeal against the above decision and paid the prescribed fee simultaneously. The Statement of Grounds of Appeal filed at the same time was followed by a number of supplementary letters which, in addition to two expert opinions filed before the first instance, contained the affidavits of two further technical experts as well as a new document (DN: EP-A-223 063) filed on 25 August 1999, that is, one day before the oral proceedings to support a new objection under Article 54(3) EPC.

V. In its counterstatements, the Respondent (Proprietor) mentioned six further documents to support its arguments and filed four auxiliary requests (27 July 1999).

VI. Oral proceedings were held on 26 August 1999, during which the relevance of the newly cited documents, in particular the one filed the day before, was discussed and the arguments brought forward in the written proceedings were elaborated.

VII. The Appellant's arguments during the written and oral proceedings can be summarized as follows:

(a) Regarding the objection of insufficient disclosure, the wording of the claims encompassed a huge array of polymers for the majority of which the claimed method would not result in a reduction of the monomer residue. The patent in suit was silent about the mechanism of the process and about how to adjust the various parameters, so that there was no guidance at all how to vary the temperature and humidity of the drying gas for different polymers or different conditions. The important relationship between the temperature and the humidity of the drying gas was nowhere indicated. Reference was made to experiments filed by the Appellant before the first instance, from which it appeared that merely operating with a temperature and dew point of the drying gas within the terms of Claim 1 was not sufficient to reduce the residual monomer content. It was thus a matter of pure luck whether or not the residual monomer content was reduced.

(b) As regards novelty, the Appellant explained that DN had only come to its attention very shortly before the oral proceedings and requested to admit it into the proceedings and to give the Respondent the opportunity to respond in writing. DN was more relevant than the other documents on file, in particular D1, because, although both citations mentioned all the features of Claim 1 except the dew point, the latter could be derived directly from DN, whereas it could only be derived from D1

by inference, requiring an expert's opinion to extrapolate the dew point values from the conditions there described. On any commercial interpretation, the use of the "recirculating band dryer" in D1 could only mean dew point and temperature conditions as in the patent in suit. To support that objection the Appellant relied upon several documents, the opinion of four specialists in the field of drying materials as well as various decisions of the boards of appeal. The Appellant also pointed out that the claimed subject-matter was not restricted to the use of a high dew point, nor was there any requirement that the indicated conditions should be maintained during the whole of the drying process, so that the process of D1 anticipated the claimed method.

- (c) Regarding inventive step, the problem defined in the patent in suit was an artificial one. It was not a problem that posed itself in industry and nobody else referred to it. The true problem concerned the drying of polymers. In those circumstances, the use of a recirculating band dryer as described in D1 was the skilled person's natural choice in view of the sticky nature of hydrated polymer gels. To operate that dryer within the limits now specified was nothing more than the best mode which the skilled person would be driven to employ for economical reasons and which he should be free to apply.

If there was an additional effect, it was an unexpected bonus-effect in a one-way-street situation, obtained by simply using the best means

to dry a polymer. An obvious process was not rendered less obvious by any advantage not hitherto disclosed. In support, the Appellant referred to a number of documents considered in various combinations and to the declarations of the technical experts concerning the economical aspects of the drying procedure, as well as to a number of decisions of the boards of appeal.

Even if the problem would be defined as monomer residue reduction, the concept of steam stripping was well known from e.g. D2, as was the idea of heating the polymer (D8). Also, it was well-known that the temperature of the polymer was raised during the initial drying phase, so that further polymerisation would occur. The patent in suit in fact only specified the conditions not explicitly mentioned, but implicitly present, in D1.

Starting from D8 as the closest document, which aimed at the reduction of residual monomer in the preparation of flocculants, the object of the claimed subject-matter was to improve that process. Although D8 taught that drying would lead to insoluble material, which in the field of flocculants was undesirable, from D2 and D3 it could be deduced that drying at increased humidity would reduce the monomer content. Therefore, no inventive step was present.

VIII. The Respondent's arguments can be summarized as follows:

(a) The conditions required by Claim 1 were not only

the dew point and the temperature of the drying gas, but also conditions such that drying of the polymer as well as a reduction of the residual monomer content were achieved, the latter being a functional definition. The patent specification and examples, illustrating many different working conditions, contained sufficient information to carry out the claimed process and to achieve the desired result within the whole ambit of the claim without undue burden. Most of the time, e.g. by extrapolating from the examples, the skilled person would be able to find, at a given drying temperature, a dew point at which the residual monomer content would be reduced. The Appellant's test results were merely a few unsuccessful examples, not proof that the invention could not be reduced to practice.

- (b) Regarding novelty, since DN, a completely new document, had only been introduced one day before the oral proceedings, the Representative had had no opportunity to discuss it with his client. As a preliminary remark, however, it was pointed out that the Appellant's allegation that the dew point could be directly derived from DN was based upon a number of assumptions as to the exact conditions applied in DN which had not been disclosed in that document. Therefore, DN should not be admitted into the proceedings or, in case the Board decided to admit it, the Respondent should be given the opportunity to comment and an apportionment of costs would be requested.

As regards D1, it did not disclose that the drying

gas contained steam, nor that the dew point should be as now required. Also, it was not said that the drying gas was actually recycled, so that a humid drying gas was also not implicitly disclosed. The opinions of the experts were based on speculation and no evidence had been provided to show that the disclosure of D1 would imply a dew point within the range as now required. Therefore, the claimed subject-matter was novel.

- (c) Contrary to the Appellant's assertion, reducing the monomer content of the polymer was a real problem and numerous documents referred to it. The patent in suit had indicated that reduction as the problem to be solved as from the very beginning.

Starting from D1 as the closest document, it did not hint at the use of dew points within the range now specified, since it contained no suggestion or even a hint that the drying gas should contain steam for any purpose, let alone for reduction of the monomer content. Since there were many possibilities of drying the polymer, at high as well as low humidity, it was not inevitable to arrive at the claimed process; hence there was no one-way-street situation. The Appellant had not provided any evidence that the use of recirculating steam in a high humidity dryer had been considered for the purpose of reducing residual monomer. The references to steam stripping concerned the removal of volatile organic residues, which was a different subject-matter altogether, and therefore were not relevant.

Taking D8 as the closest prior art, it taught away from drying the polymer so that the skilled person would not find any incentive to do so. References D2 and D3 concerned the removal of volatile organic residues and did not relate to the field of the patent in suit. The teaching of the claimed process to achieve the aim by selecting the particular parameters as in present Claim 1 could not be derived from the prior art. Therefore, the claimed subject-matter was inventive.

- IX. The Appellant requested that the decision under appeal be set aside and the patent be revoked.

The Respondent requested that the appeal be dismissed, or, alternatively, that the patent be maintained on the basis of one of the four sets of claims filed as auxiliary requests.

Reasons for the Decision

Admissibility of the appeal

1. The appeal is admissible.

Procedural matters

2. One day before the oral proceedings to be held before the Board, the Appellant filed DN, which had until then not been mentioned in any way and hence is a completely new document in the case. In view of the late filing the Respondent had had no opportunity to study the

document and to give its comments. In these circumstances, the Board considered that the criteria as laid down in decisions G 9/91 and 10/91 (OJ EPO 1993, 408 resp. 420) should be applied, that is, the document must be *prima facie* highly relevant in the sense that it is highly likely to prejudice the maintenance of the patent. Since DN contained no specific and direct disclosure of the dew point and was completely silent regarding the residual monomer content, the Board found that the subject-matter claimed by the patent in suit was not clearly and unambiguously disclosed in DN, so that DN *prima facie* could not be estimated to prejudice the novelty under Article 54(3) EPC of the claimed subject-matter. Therefore, DN was not admitted into the proceedings and a final decision could be announced at the end of the oral proceedings.

Wording of the claims

3. The only amendment to the claims during the opposition proceedings consisted in the incorporation into Claim 1 of the subject-matter of Claim 4 as originally filed and granted. Such a modification obviously complies with the requirements of Article 123(2) and (3) EPC and was not objected to by the Appellant.

3.1 However, in the framework of its objections under Articles 83 and 54 EPC, the Appellant raised an objection against the scope of the claims. This amounted to an implicit objection under Article 84 EPC, which is not a ground for opposition. The objection was based upon the fact that, on the one hand, the only requirement regarding the polymer was not its

composition or structure or the way it was prepared, but solely its hydrophilicity, and, on the other hand, the reduction of the residual monomer content was not always achieved by carrying out the method as defined by the other features of the claim, that is, the temperature and dew point of the drying gas.

3.2 As explained by the Respondent during the oral proceedings, the method of Claim 1 was defined not only by the presence of a hydrated hydrophilic gel polymer and specific process parameters, e.g. temperature and dew point of the drying gas, but also by the requirement that residual monomer content should be small. The latter feature, which corresponded to a characterization of the claimed subject-matter by the result to be achieved, was thus a functional definition of the method, which ensured that the residual monomer content of the hydrophilic polymer after treatment was substantially lower than before treatment. As further argued by the Respondent, such characterization was necessary in view of the fact that (i) the desired effect was unpredictable, (ii) it concerned in practice a relatively small amount of polymers and (iii) consequently, there was no other way to ensure an appropriate protection of the invention (T 292/85, OJ EPO 1989, 275).

3.3 This argument has been accepted by the Board. It follows that the scope of protection is to be interpreted as limited to the cases where a combination of compositional features (hydrophilic groups) and process features (drying conditions, temperature and dew point of the drying gas) within the terms of Claim 1 leads effectively to a substantial reduction of

the residual monomer content as compared to conditions which fall outside the required features. It also follows that the substantive issues raised by the Appellant will have to be appraised in the light of that interpretation.

Sufficiency of disclosure

4. The Appellant based its insufficiency objection mainly on the argument that in many cases the process features of Claim 1 would not lead to the desired monomer reduction and that the patent in suit contained no guidance in which cases the claimed method would work.

4.1 The patent in suit contains twenty examples which describe the treatment of different polymers at several temperatures, dew points and compositions of the drying gas, i.e. a great number of variations within the scope of Claim 1. Also, there are fifteen control examples which illustrate the influence of single parameters falling outside the claimed subject-matter. The Appellant has not argued, nor shown, that any of the examples would not be repeatable, so that the Board is satisfied that a skilled person would in fact be able to reproduce the examples and to apply the method there described.

4.2 Regarding the more general definition of the working conditions of the claimed method, the requirement that the residual monomer content should be small, as interpreted above (point 3.3), means a limitation to the extent that only systems in which the residual monomer content is actually reduced are covered by the claimed subject-matter. Therefore, for the patent in

suit to comply with Article 83 EPC, the skilled person should be able to verify, without undue burden or inventive activity, whether or not the method would work under any other conditions than those specified in the examples. The Board is satisfied that such is the case. One could, for instance, measure the residual monomer content of a polymer gel dried at a certain temperature and/or dew point outside the specified ranges, and then, after changing the conditions so as to comply with the requirements as claimed, determine if the monomer content was actually reduced. Such a procedure would not take very long, so that the skilled person would, within a reasonable time and guided by the examples, from which the effect of changing the dew point and/or temperature of the drying gas can be seen, always be able to establish the effectiveness of the method. It is therefore concluded that the skilled person, guided by the information contained in the patent specification, by means of systematic trial and error experiments, would be able to produce a hydrophilic polymer with a small residual monomer content.

Novelty

- 5. The novelty objection was solely based upon D1.
- 5.1 This citation describes a method for producing a cross-linked polymer, which comprises continuously feeding an aqueous solution of a monomer and polymerizing into a water-containing cross-linked gel polymer with a polymerization initiator in a vessel provided with parallel rotary stirrer shafts fitted with blades, finely dividing the gel polymer produced by the

shearing force of the stirrer blades during the polymerization, and continuously discharging the resultant finely divided gel polymer from the vessel (Claim 1). In Example 1 the polymer gel is then spread on a wire gauze and dried in a hot air drier at 150°C. In Example 2 the polymer is dried with a blast of hot air at 160°C in a continuous through-circulation band drier. In the third example (named Example 4), the polymer is again spread on a wire gauze and dried with a blast of hot air at 180°C for one hour. Neither dew points nor monomer residue contents are mentioned.

5.2 The Appellant's argument, supported by the declarations of four technical experts, was that, when drying the polymer as described in Example 2, the dew point would automatically reach a value within the range now specified. However, that allegation is based upon a number of assumptions regarding the other conditions used in that example, so that its value is doubtful. In fact, the Appellant conceded that dew points as now specified in Claim 1 would not occur inevitably. Moreover, the Appellant made no attempt to repeat Example 2 of D1 in order to measure the dew point actually reached during the drying operation, in which case also the residual monomer content could have been determined. Since the possibility that the dew point falls outside the required range is definitely present and there is no evidence that the dew point in Example 2 of D1 actually does fall within it, the range for the dew point of the drying gas as specified in Claim 1 cannot be regarded as clearly and unambiguously disclosed in D1.

5.3 Furthermore, even if this were the case, there is no

indication at all that the residual monomer content in Example 2 of D1 was in fact reduced. On the contrary, the experimental report which the Appellant filed during the proceedings before the first instance (20 November 1993) shows that under conditions of temperature and dew point of the drying gas in accordance with the patent in suit, no residual monomer reduction in fact occurred. Therefore, there is no reason to assume that the drying method of Example 2 of D1 would not only implicitly disclose the dew point of the drying gas, but also meet the third requirement of the claimed-subject matter: a reduced residual monomer content.

- 5.4 Consequently, D1 does not disclose all the features now claimed, be it explicitly or implicitly, and hence cannot be regarded as detrimental to novelty.

- 5.5 As for the other documents on file, the Appellant did not base any novelty objection on them and the Board concurs with the Opposition Division that they are not detrimental to novelty.

Inventive step

- 6. The patent in suit concerns a hydrophilic polymer and method for production.

- 6.1 The treatment of hydrophilic polymer is disclosed in D1 as well as D8.

- 6.1.1 As mentioned above (point 5), D1 relates to a method of producing crosslinked polymers. It aims at solving the problems associated with polymerizing aqueous solutions

as water-in-oil emulsions or suspensions in a hydrophobic solvent, which require the use of large volumes of organic solvents, and with cast polymerizing aqueous monomer solutions, which involves the continual removal of heat of reaction; furthermore, the drying of the polymers produced by those methods entails finely dividing the polymer, thus causing huge energy consumption (page 1, lines 7 to 18). The solution taught in D1 consists in polymerizing an aqueous solution of the monomer into a water-soluble polymer gel, finely dividing the latter and continuously discharging it from the vessel (page 1, lines 22 to 27). The general teaching of D1 does not go beyond the production of finely divided polymer gel followed by a drying step described in general terms. In particular, there is no mention of the residual monomer content, let alone any teaching directed to a control or a reduction of that parameter.

6.1.2 D8, however, concerns a method for the reduction of the amount of water insolubles and free monomer in an aqueous acrylamide polymer gel charge containing at least about 25% polymer and having a molecular weight of at least about 4 million which comprises heating said polymer gel, in the substantial absence of a sulfite compound, at a temperature ranging from about 80°C to 150°C for at least about 30 minutes while simultaneously maintaining the water content of the gel undergoing heating at substantially the concentration of that of said charge and recovering the resultant polymer gel (Claim 1). After the gel has been heated, it is dried according to any known procedure (column 3, lines 37 to 38).

6.1.3 From the above it is clear that the methods of both D1 and D8 have many features in common with the present process, but that only D8 addresses the same problem as the patent in suit, that is, reduction of the residual monomer content. Therefore, the Board, like the Opposition Division but contrary to the parties' points of view, considers D8 to be the closest prior art document (see also decision T 606/89 dated 18 September 1990, not published in OJ EPO).

6.2 Although the method according to D8 is said to result in low residual monomer, it involves an additional intermediate process step during a period of time which may extend over several hours (column 2, lines 52 to 57), that is, heating the polymer before drying, thus making the process rather cumbersome. In view of this, the technical problem underlying the patent in suit, along the lines of the introductory statement in the patent specification (page 2, lines 48 to 50), may thus be seen in providing a simplified method for the production of a hydrophilic polymer having a small residual monomer content.

6.3 According to the patent in suit this problem is to be solved by carrying out the drying step with a gas containing steam and having a specific dew point range at a given temperature range, as specified in Claim 1.

6.4 The examples and comparisons with the prior art in the patent specification (Tables 1 to 11) demonstrate that the above-defined problem has been effectively solved. In particular, it has been shown that hydrophilic polymers have been prepared and dried under such conditions as to result in a substantially reduced

residual monomer content.

7. The issue to be decided, therefore, is whether the claimed subject-matter is obvious having regard to the documents on file.
- 7.1 The general teaching of D8 is that the polymer gel, after polymerization, should not be dried, but should first be subjected to a heating step during which the water content of the polymer gel is kept substantially constant. If any drying of the polymer gel would occur, insoluble material would be formed, which is considered undesirable (column 2, lines 58 to 66). Neither the means of maintaining the water concentration of the gel substantially uniform (column 2, lines 66 to column 3, line 16), nor the procedure followed to carry out the final drying step (column 3, lines 37 to 39) are described as essential for a successful recovery of a dry polymer, provided that the above-indicated sequence of operations is followed. The skilled person faced with the technical problem as defined above (point 6.2) hence had no reason to depart from the specific teaching of D8, in particular no incentive to consider a selection along the lines of the claimed method, which is based on a drying step without a preliminary heating step. A further point to consider, which follows from the absence of any information concerning the drying step in D8, is that this citation does not regard the features thereof as critical for the achievement of a lower residual monomer content. For both reasons, D8 alone does not render obvious the definition of the method now being claimed.
- 7.2 In its Notice of Opposition, the Appellant combined the

teaching of D8 with that of D1, arguing that it would have been immediately evident to the skilled person that operating a recirculating band drier as in Example 2 of D1, under conditions which would almost invariably give rise to high humidity, would be likely to give reduction of the residual monomer content. The Board cannot follow that assertion for the following reasons.

First, there is no reason for the skilled person to combine the method described in D8 with the specific drier used in Example 2 of D1. After all, D1 discloses two more examples in which a different type of drier is used and the skilled person might as well have chosen one of those driers. Secondly, D1 is silent about the humidity of the drying gas. As pointed out above (point 5), the allegation of high humidity is based upon a number of assumptions for which no basis in D1 can be found, so that the humidity of the drying gas cannot be regarded as implicitly disclosed. Thirdly, D1 is completely silent about the residual monomer content and the skilled person would not have learned anything in that respect from D1 so as to modify the process described in D8 in accordance with the method now claimed.

- 7.2.1 During the oral proceedings the Appellant also referred to D2 and D3 in combination with D8.

In D3 the concept of the "critical relative humidity" (CRH) of a coating is developed, which concerns the evaporation behaviour of aqueous solutions containing cosolvents (page 48, Summary). D2 concerns the evaporation behaviour of organic cosolvents in water-

borne formulations (page 65, right-hand column, paragraph "Critical Relative Humidity"). Both documents define the CRH as the relative humidity necessary to allow the drying to occur so that the concentration of organic cosolvent in water remains unchanged during the drying process. When the air is drier than the CRH, water flashes off faster than the organic cosolvent, leaving a cosolvent-enriched "tail". Conversely, if the drying air is wetter than the CRH, the cosolvent flashes off in preference to water.

Hence both D2 and D3 pertain to the removal of solvents, which are usually present in amounts of the order of magnitude of the polymer, thus normally expressed in percentages. By contrast, the patent in suit relates to the removal of residual monomer, the amount of which is indicated by parts per million in relation to the polymer. It is therefore clear that the general teachings of D2 and D3 relate to a concept which is so remote from the problem solved by the patent in suit that the skilled person would not have considered the combination thereof with the method known from D8. Apart from that, the Appellant has failed to demonstrate any relationship between, on the one hand, the temperature and dew point ranges as required in Claim 1 and, on the other hand, the CRH, so that it is not evident that, even if D2 or D3 were combined with D8, such a combination would have resulted in the claimed subject-matter.

7.2.2 Therefore, even if the skilled person would indeed have been encouraged to depart from the method of D8, there was no incentive whatsoever either in D1, D2 or D3 or any of the other documents on file, to modify it in

such a way as to arrive at the present process.

7.3 In addition to the above line of argument the Appellant also relied on D1 as the basis of its objection of lack of inventive step.

7.3.1 Starting from D1, the Appellant argued that in the present case the problem-solution approach should not be applied since the problem was an artificial one, the true problem being the drying of the polymer. In that respect, the claimed subject-matter was *prima facie* obvious since the skilled person would naturally use the drier mentioned in Example 2 of D1 and, in applying economically optimal drying conditions, would automatically operate under the conditions now being claimed. It was a one-way-street situation (T 192/82, OJ EPO 1984, 415), which remained obvious even if there was an unexpected effect. Also, arguing in parallel to decision T 188/83 (OJ EPO 1984, 555), where it was stated that novelty could not be established solely by a reference made to an advantage which had until then not been recognised, inventiveness could not be established by an unexpected advantage.

7.3.2 The Board cannot follow the Appellant's arguments for the following reasons:

(i) In view of the feature of substantial reduction of the residual monomer content, which, as a functional feature, is an essential aspect of Claim 1 (see point 5 above), there is no reason to ignore that feature and to assume it would be an artificial factor. All the more so, since in view of D8 it can be concluded that it is in fact an

existing problem in industry.

- (ii) The Appellant maintained that operating within the ranges required in Claim 1, when applying the drier used in Example 2 of D1, was inevitable for the skilled person. That assertion was supported by declarations of four technical experts, which concerned the circumstances in which the continuous band drier of Example 2 of D1 was employed. However, all four opinions started from the use of such a drier as a matter of course, without considering the possibility of using another type of drier, such as e.g. described in Examples 1 and 4 of D1. Therefore, not only is the use of a certain type of drier one of several alternative possibilities, but the conditions under which the drier is employed are, as pointed out above (point 5), also open to variation. Therefore, the Board cannot see a one-way-street situation in the present case and it considers the argument of *prima facie* obviousness as unsupported by the facts and, accordingly, the references to the decisions T 192/82 (*supra*) and 188/83 (*supra*) as inappropriate.

7.4 For the reasons given above, the Board concludes that the subject-matter of present Claim 1 cannot be derived from the documents relied upon by the Appellant, whether taken alone or in combination, and, therefore, involves an inventive step.

8. As Claim 1 is allowable and Claims 2 to 11 relate to further embodiments of the method according to Claim 1, their patentability is supported by that of Claim 1.

9. Since the Respondent's main request can be granted, its auxiliary requests need not be considered.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

E. Görgmaier

C. Gérardin