Internal distribution code:
(A) [X] Publication in OJ
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(C) [ ] To Chairmen

DECISION
of 14 February 1996

Case Number: T 0039/93 - 3.3.3

Application Number: 85304517.7

Publication Number: 0169674

IPC: C08J 3/12

Language of the proceedings: EN

Title of invention:
Polymer powders

Patentee:
ALLIED COLLOIDS LIMITED

Opponent:
SNF Floerger

Headword:
-

Relevant legal provisions:
EPC Art. 56, 113(2), 114(1) & (2)
EPC R. 27(1)(c), 55(c), 71a

Keyword:
"Inventive step (yes) - combination of physical and compositional features not in accordance with the prior art teaching"
"Problem solution approach - reformulation of technical problem - objective problem"
"Late filed material confirming evidence previously submitted"
"Limits on investigative function of the Boards of Appeal"
"Effects of Rule 71a EPC considered"

Decisions cited:
G 0007/91; G 0008/91; G 0009/91; G 0010/91; T 0020/81; T 0013/84; T 0229/85; T 0170/87; T 1002/92; T 0246/91; T 0495/91; T 0741/91

Headnote:

1. New Rule 71a EPC should not be construed as an invitation to file new evidence or other material departing from the legal and factual framework of issues and grounds pleaded and evidenced throughout the proceedings prior to the hearing of the appeal (point 3.3 of Reasons).

2. The technical problem as originally presented, in accordance with Rule 27(1)(c) EPC, in the application or patent in suit, which is to be regarded as the "subjective" technical problem, may require reformulation on the basis of objectively more relevant elements originally not taken into account by the Applicant or Patentee. This reformulation yields a definition of the "objective" technical problem. The latter represents the ultimate residue (effect), corresponding to the objective contribution provided by the subject-matter defined in the relevant claim (features)(Points 5.3.1, 5.3.2, 5.3.3 of Reasons).

3. Whilst generally accepted definitions of the notional "person skilled in the art" do not always use identical language to define the qualities of such a person, they have one thing in common, namely that none of them suggests that he is possessed of any inventive capability. It is the presence of such capability in the inventor which sets him apart from the notional skilled person (point 7.8.4 of Reasons).

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Headnote : follows

Case Number: T 0039/93 - 3.3.3

DECISION
of the Technical Board of Appeal 3.3.3
of 14 February 1996

Appellant: (Opponent)	SNF Floerger 41, Rue Jean-Huss F-42028 Saint-Etienne Cedex (FR)
Representative:	Maiwald, Walter, Dr. Dipl.-Chem. Maiwald & Partner Poccistrasse 11 D-80336 München (DE) and Cabinet Michel Richebourg "Le Clos du Golf" 69, Rue Saint-Simon F-42000 Saint-Etienne (FR)
Respondent: (Proprietor of the patent)	ALLIED COLLOIDS LIMITED P.O. Box 38 Low Moor Bradford West Yorkshire BD12 OJZ (GB)
Representative:	Lawerence, Peter Robin Broughton GILL JENNINGS & EVERY Broadgate House 7 Eldon Street London EC2M 7LH (GB)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office of 22 September 1992, issued in writing on 2 November 1992 concerning maintenance of European patent No. 0 169 674 in amended form.**

Composition of the Board:

Chairman: C. Gérardin
Members: R. Young
J. A. Stephens-Ofner

Summary of Facts and Submissions

I. The mention of the grant of European patent No. 0 169 674, in respect of European patent application No. 85 304 517.7, filed on 25 June 1985 and claiming a GB priority of 28 June 1984 (GB 8416454) was announced on 9 May 1990 (cf. Bulletin 90/19). Claim 1 read as follows:

"A process in which a water soluble or water swellable high molecular weight polymer is dispersed into a liquid phase to form a fluid composition comprising the polymer in the form of gel particles interconnected by the liquid phase and the polymer is worked while present as the fluid composition, characterised in that the gel particles have a size during the working of at least 20µm and the liquid phase is an aqueous solution of an equilibrating agent that substantially prevents aggregation of the particles or dissolution of the polymer during working, the concentration of equilibrating agent in the aqueous solution is 10% to 70% by weight, the ratio (dry weight) of high molecular weight polymer to equilibrating agent is from 1:0.3 to 1:10, the ratio (by weight) of the aqueous solution to gel particles is from 0.5:1 to less than 10:1, and the gel polymer and equilibrating agent are selected from the combinations of gel polymer and equilibrating agent consisting of: (a) the gel polymer is an anionic polymer and the equilibrating agent a water soluble anionic polymer of ethylenically unsaturated monomers, blends of water soluble cationic polymers of ethylenically unsaturated monomers with inorganic salts, and polydiallyldimethyl ammonium chloride; (b) the gel polymer is a cationic polymer and the equilibrating agent is a water soluble cationic polymer of ethylenically unsaturated monomers, polyethylene imine, dimethylamine epichlorhydrin reaction product, and blends of water soluble anionic polymer of ethylenically unsaturated monomers with inorganic salts; (c) the gel polymer is a non-ionic polymer and the equilibrating agent is a water soluble anionic polymer of ethylenically unsaturated monomers or a water soluble cationic polymer of ethylenically unsaturated monomrs; and (d) the gel polymer is a cellulosic or starch polymer and the equilibrating agent is a water soluble anionic polymer of ethylenically unsaturated monomers."

Claims 2 to 16 related to elaborations of the process of Claim 1.

II. Notice of Opposition was filed on 7 February 1991 on the grounds that the subject-matter of the patent in suit did not involve an inventive step (Article 100(a) EPC) and furthermore extended beyond the content of the application as originally filed (Article 100(c) EPC). The Opposition was supported inter alia by the following documents:

D3: US-A-4 380 600; and
D5: FR-A-2 531 093.

III. By an interlocutory decision which was given at the end of oral proceedings held on 22 September 1992 and issued in writing on 2 November 1992, the Opposition Division held that the patent could be maintained in amended form, the principal amendments being (i) the concentration of equilibrating agent in the aqueous solution which was now "above 10% but below 70% by weight" and (ii) the definition of the dimethylamine epichlorhydrin product, which was now "polydimethylamine epichlorhydrin".

According to the decision, the amendments overcame the objections under Article 123 EPC and the claimed subject-matter was novel. As to inventive step, the closest state of the art document, which was D5, was silent with regard to alternatives other than the surfactants it effectively employed, and the remaining documents could not be taken into account because they related to different technical fields. In particular, D3 did not concern a polymer in the form of a gel.

IV. On 30 December 1992, a Notice of Appeal against the above decision was filed by the Appellant (Opponent), together with payment of the prescribed fee.

In the Statement of Grounds of Appeal filed on 4 March 1993 and a subsequent written submission filed on 30 November 1993, the Appellant argued substantially as follows:

(a) The dispersions of D5 provided workability of the polymer as well as stability of the dispersion, and consequently the technical problem was simply to find a non-surfactant replacement for the surfactant equilibrating agents of D5.

(b) In assessing the remaining state of the art for stabilising suspensions of solid particles and facilitating their handling where necessary, it was not pertinent how the particles had been made, since the problem only arose once one had a suspension.

(c) It was thus erroneous to disregard a combination of D3 and D5, since D3 expressly taught the avoidance of unwelcome increases in viscosity which could make the handling of the suspension more difficult. Furthermore, a reproduction of Comparative Example 1 of D3 showed that the product was a stiff gel. Consequently, D3 belonged to the same technical field as the patent in suit.

(d) The term "microscopic particles" in D3 was rather indefinite and was in any case irrelevant to the question of whether these particles were in the form of a gel or not, but, since it was evident that the polymer was in fact a gel, it was obvious to combine D3 and D5.

(e) The application underlying the patent in suit had in any case considered surfactant and non-surfactant types of equilibrating agents to be perfectly equivalent. To disclaim one of these possibilities could only establish novelty, but not inventive step. The fact that D5 did not explicitly refer to such equivalence was beside the point. It was not acceptable to argue that two documents could only be combined if one expressly mentioned the other.

V. The Respondent (Patentee) argued in a submission filed on 17 September 1993 in essence as follows:

(a) Whereas D3 was particularly concerned with the synthesis of microscopic particles of polymer by polymerisation of monomers and could be assumed to involve some sort of complexing system of the polymer molecules as they were formed, the patent in suit was concerned with the stabilisation of pre-formed polymer particles that were not microscopic, but large, above 20µm.

It was not to be expected that a mechanism associated with complexing on a molecular scale would be applicable to a system for stabilising large particles of polymer.

(b) In any case, the subject-matter claimed in the patent in suit was distinguished by the rather precise definition in the patent in suit of the materials to be combined.

VI. A communication was issued by the Board on 15 September 1995 with a summons pursuant to Rule 71(1) EPC to oral proceedings for 14 February 1996 and set, in accordance with Rule 71a EPC, a final date for the filing of any further submissions of one month before these oral proceedings. Both parties, however, filed several further submissions and evidence.

(i) The Appellant cited, in a letter dated and received on 12 January 1996, two further documents, which will be referred to here as D6 and D7.

(ii) Also on 12 January 1996, a fax was received from the Respondent, including two sets of amended claims, labelled "Main request" and "First auxiliary request" respectively.

(iii) By a fax of 15 January 1996, the Appellant maintained his previous substantive objections on the basis of the teachings of D3 and D5 against these amended claims.

(iv) In a still further submission received on 18 January 1996, the Respondent objected to the introduction of D6 and D7 and indicated that he would seek an adjournment with an award of costs against the Appellant if either or both of these new documents were to be introduced into the proceedings.

(v) A supplementary submission, including a further experimental report (D8) and samples, was filed by the Appellant on 30 January 1996.

(vi) A submission of the Respondent containing counterevidence (D9) in the form of experimental results was received on 12 February 1996. It also contained a statement that the Respondent no longer objected to the introduction of the late-filed evidence of the Appellant, i.e. items D6 to D8.

VII. Oral proceedings were held before the Board on 14 February 1996, during which the Appellant additionally referred to a further item of evidence (D10), stated to be a graphical representation of the results obtained from a particle size analyser.

VIII. The Appellant requested that the decision under appeal be set aside and the patent revoked, or, auxiliarily, that the patent be maintained in a form defining the gel particles in Claim 1 in a more restrictive way, by including certain features from the description.

The Respondent requested that the patent be maintained on the basis of the claims and description attached to the decision under appeal, but subject to the amendments submitted by way of main request on

.../...

12 January 1996 and shown on page 12, also labelled "Main Request", attached thereto, or on the basis of the "First Auxiliary Request" submitted in the course of the oral proceedings.

Reasons for the Decision

1. The appeal is admissible.

2. *Admissibility of the Appellant's auxiliary request*

The auxiliary request of the Appellant to have certain features included in the claims of the patent in suit could not be entertained by the Board, since, according to Article 113(2) EPC, the EPO may consider and decide upon the patent only in the text submitted or agreed to by the Patentee (here the Respondent), and no such corresponding request or consent was provided by the Respondent.

Hence, the auxiliary request of the Appellant is rejected as inadmissible.

3. *Admissibility of recently filed evidence*

The requests and evidence filed by the parties following the issue of the communication amounted to six separate submissions, four of them filed after the final date set in accordance with Rule 71a EPC.

The Appellant's argument during the oral proceedings, that the issue of such a communication constituted an "open invitation" to file such further items of evidence, even though this flew in the face of all the judicial principles developed in recent years by the

Boards of Appeal, and that if evidence filed after the final date under Rule 71a EPC "need not be considered", then evidence given before it had to be, was duly noted by the Board, subject to the following observations.

3.1 Since the issue of the above communication, the applicability of Rule 71a EPC to proceedings before the Boards of Appeal has been called into question, as it has become the subject of a referral to the Enlarged Board of Appeal.

This being the case, at the very least, the attitude of the Board to the recently filed evidence needs to be governed, not so much by Rule 71a EPC, but rather by the well established substantive criteria that had been routinely applied in such cases, and which arise from the definitive findings of the Enlarged Board of Appeal, in particular from its rulings as to the nature and function of appeals in G 0009/91 and G 0010/91, OJ EPO, 1993, 408 and 420, respectively.

3.1.1 According to these findings, Rule 55(c) EPC has the double function of governing the admissibility of the opposition and of establishing at the same time the **legal** and **factual** framework, within which the substantive examination of the opposition shall be conducted. Both rulings, confirming a number of earlier cases of a number of Boards of Appeal, as well as decisions G 0007/91 and G 0008/91, OJ EPO 1993, 356 and 346, respectively, also state that appeals are **judicial** as opposed to merely **administrative** proceedings, so that their function is mainly to decide whether the first instance decision was right on its merits.

Consequently, the **legal** and **factual** framework of the case on appeal must remain the same or substantially the same as that of the one decided by the first instance, otherwise no valid judgment on the merits of the first instance's decision could be made. One exception to this principle is, however, justified in the case where the Patentee agrees that a fresh ground of opposition may be considered (**volenti non fit injuria**), in which event the case should normally be remitted to the first instance. The Enlarged Board also expressly held that the investigative function under Article 114(1) EPC of the Boards of Appeal was severely restricted as compared with that of the first instance, administrative, divisions.

3.1.2 According to the decision T 1002/92, OJ EPO 1995, 605, it follows from both these rulings that the same principles also govern the admissibility of late-filed new "facts, evidence and related arguments", since it is these which make up the **factual** framework of the case under appeal, whilst the extent to which the patent is opposed and the grounds of opposition constitute the **legal** framework.

This decision accordingly concluded *inter alia* that, in relation to proceedings before the Boards of Appeal, such "new facts, evidence and related arguments" should only very exceptionally be admitted into the proceedings, if such new material is prima facie highly relevant in the sense that it is **highly likely to prejudice maintenance of the European patent in suit** (Reasons for the decision, points 3.3 and 3.4).

3.2 Reverting, for the sake of completeness, to the Board's views on the relevance to appeal proceedings of Rule 71a EPC, the Board cannot accept the

Appellant's legal proposition that an amendment to a procedural rule (i.e. old Rule 71 EPC) is capable of overriding those well-established legal principles, laid down in the points of law above referred to, that define the nature and function of appeals, and in particular the scope and effect of Article 114(1) EPC in relation to that function.

In other words, the meaning of an Article of the EPC (here, Article 114), on its true interpretation as established by a ruling of the Enlarged Board of Appeal cannot, in the Board's view, be overturned by a newly drafted Rule of the Implementing Regulations, the effect of which is to conflict with this interpretation. This is because, according to Article 164(2) EPC, in the case of conflict between the provisions of this Convention (the EPC Article) and those of the Implementing Regulations, the provisions of this Convention shall prevail.

3.3 In any case, a communication sent to the parties pursuant to new Rule 71a EPC should not be construed as an invitation to file new evidence or other material departing from the legal and factual framework of the issues and grounds pleaded and evidenced throughout the opposition and appeal proceedings prior to the hearing of the appeal.

3.4 In the present case, as was mentioned before, the Respondent explicitly withdrew all objection to the introduction of the late filed evidence (D6 to D8) by the Appellant and, furthermore, the latter raised no objection either to the introduction of the Respondent's evidence (D9) in response to this late filed evidence.

Consequently, applying the principle of "**volenti non fit injuria**", the legal exception provided by the Enlarged Board is fulfilled, thereby empowering the Board to admit all such late filed matter to which no objection was made by the Patentee.

3.5 An important point in this connection is that all the new evidence is related to what happens when carrying out the process disclosed in D3, and in particular to the nature of any particles formed. It cannot, therefore, be said to change the framework of facts, evidence and arguments forming the case to be decided by the Board, since it is a practical elucidation which crystallises the implicit disclosure of this document, which has itself formed part of the proceedings from the very start.

Thus, the Board is not here confronted with a fresh or different case as a result of exceptionally admitting this evidence, and so there is no consequent need to refer the case back to the first instance.

3.6 In the light of all these considerations, it is, therefore, only necessary to consider all the recently filed evidence from the point of view of its relevance, i.e. its evidential weight in relation to the other documents already in the proceedings, and from the point of view of general procedural fairness.

3.7 Turning now to the items of evidence submitted to the Board, it is worth noting that both D6 and D7 originated from another and quite different case, wherein they had been adduced in evidence by a party (there the Patentee) who is not a party in the present case, and in which the present Appellant was also the Opponent. D6 was an experimental report including a repetition of a process as exemplified in D3, and D7 was a photomicrograph relating to a product of such a process. The original photomicrograph - of which D7 filed in the present case is a photocopy - is a piece of evidence that is private to the case in which it was introduced. This Board has to decide this appeal on the basis of the evidence and arguments adduced in this case and this case alone. It would be wholly wrong for it to take cognizance of any matter that is not actually in this particular case; since, as was said before, its investigative functions are severely limited by the fact that it is a judicial as opposed to an administrative body.

Consequently, in the case of D7, the Board was limited to a consideration of the photocopy filed in the present appeal.

Notwithstanding the above, each of D6 to D9 supplements the disclosure of D3 by providing details and/or photographs and/or samples of the products obtained when working the process described and exemplified in D3.

Consequently they must have, read in the context of D3, an evidential weight greater than that of D3 alone.

3.8 Furthermore, the Respondent having filed counterevidence (D9) in reply to that of the Appellant (D6 to D8), there is no procedural imbalance which could result in unfairness.

In the light of all the above considerations and in accordance with the requests of both parties, the Board, in its discretion, has decided to admit, pursuant to Article 114(1) EPC, the evidence contained and set out in documents D6, D7, D8 and D9 to the proceedings.

3.9 The evidence relating to particle size distribution, in the form of graphical results from a particle size analyser (D10), sought to be introduced by the Appellant on the day of the oral proceedings, is, however, of a different character.

3.9.1 Firstly, filing such evidence even on the day before the oral proceedings is not considered to be acceptable conduct on the part of the submitting party, since this allows the other party only to consider and respond to it during the oral proceedings (T 0741/91 of 22 September 1993, not published in OJ EPO; Reasons for the decision, point 4.6).

This conclusion applies **a fortiori** where, as in the present case, the evidence in question was not filed until the actual day of the oral proceedings.

3.9.2 Secondly, the relevance of such additional information as could be derived from a particle size distribution analysis, over and above that which is available from the other documents already admitted to the proceedings, is not apparent to the Board.

3.9.3 Consequently, the Board has decided to exclude the latter item of evidence, (D10), from the proceedings pursuant to Article 114(2) EPC.

4. *Allowability of amendments*

4.1 Whilst the text of the patent in suit forming the basis of the present appeal is the result of extensive amendment pre-grant, including in particular a major restriction in the scope of Claim 1, the text of which as originally filed corresponded to the first eleven lines of Claim 1 as granted, up to and including the phrase "an equilibrating agent that substantially prevents aggregation of the particles or dissolution of the polymer during working" (section I, above), the allowability of these amendments was not the subject of any dispute between the parties. On the contrary, the Appellant during the oral proceedings before the Board repeatedly acknowledged the allowability in particular of the restricted Claim 1.

4.1.1 In view of the general considerations applying to the scope of the proceedings set out above, there would have been no reason for the Board to consider the allowability of the above amendments further.

4.1.2 The significance of the amendments having been made at all did, however, form the basis of certain arguments of the Appellant (section IV.(e), above), and these are dealt with at an appropriate point in the decision (section 7.8.2, below).

4.2 As regards the amendments made post-grant, Claim 1 of the main request differs from the version as granted only by (i) the replacement, in the twelfth and thirteenth lines of the claim, of "10 to 70%" by "above 10% but below 70%"; (ii) the insertion, after "equilibrating agent", in the twentieth and twenty-sixth lines of the claim, of the words "is selected from"; (iii) the replacement, in the twenty-eighth line, of "dimethylamine epichlorhydrin reaction product" by "polydimethylamine epichlorhydrin"; and (iv) the correction, in the thirty-fifth line, of a typographical error (the spelling of "monomrs").

An amendment corresponding to (iii), above has been effected in Claim 9.

Claims 10 to 15 now refer in their appendancy to Claim 9.

4.3 All of the above post-grant amendments were already present in the version of Claims 1 to 16 attached to the decision under appeal, **except** for (ii) in Claim 1 and (iii) appearing in Claim 9, and did not give rise to any objections by the Appellant. On the contrary, amendment (iii) in Claim 1 was made in response to the ground of opposition under Article 100(c) EPC, which ground was no longer pursued by the Appellant. Nor does the Board see any reason to raise such an objection itself.

The latter amendments were, however, made during the appeal, in response to points raised in the communication of 15 September 1995 (paragraphs 3.1, 3.2).

Amendment (ii) emphasises the pattern of selection already implied by the antecedent phrase "and the gel polymer and equilibrating agent are selected from the combinations of gel polymer and equilibrating agent consisting of:" in the sixteenth to the nineteenth lines of Claim 1. It merely removes any possible ambiguity arising from the use of the word "and" in the predicated list of alternative selections.

Amendment (iii) in Claim 9 provides consistency with the corresponding amendment previously effected in Claim 1.

Thus, neither of the amendments made in this appeal adds subject-matter to, or broadens the scope of any claim, nor indeed was any objection raised against any of them under Article 123 EPC by the Appellant.

4.4 The text of the description remains unchanged compared with that attached to the decision under appeal, itself differing from the version as granted only by amendments to provide consistency with the revised claims, clerical amendments and the deletion of references to non-ionic variants of the equilibrating agent falling outside the scope of Claim 1.

No objection was raised to these amendments under Article 123 EPC, and the Board sees no reason to take a different view.

4.5 Consequently, and irrespective of the absence of a formal objection under Article 123 EPC by the Appellant, the amended claims and description are allowable under Articles 123(2) and (3) EPC.

5. *The closest state of the art; the technical problem*

5.1 The patent in suit is concerned with subjecting a water soluble or water swellable polymer to some working operation, such as, for example, comminuting the polymer or transporting it from one part of a manufacturer's plant to another (page 2, lines 3 to 7). A particular problem arises when the working involves conversion of a rigid aqueous gel of the polymer into particles, since there is a tendency for the particles temporarily to form an agglomerated mass upon initial contact with water (page 2, lines 18 to 20 and 35 to 37).

To avoid this disadvantage, the water soluble or water swellable high molecular weight polymer is dispersed into a liquid phase to form a fluid composition comprising the polymer in the form of gel particles interconnected by the liquid phase, and the polymer is worked while present as the fluid composition, the process being characterised in that the gel particles have a size during the working of at least 20µm and the liquid phase is an aqueous solution of an equilibrating agent that substantially prevents aggregation of the particles or dissolution of the polymer during working (page 3, lines 12 to 17).

Such a process is, however, known from D5, which is considered to form the closest state of the art, since it is also concerned with the tendency, when a water soluble polymer powder is dissolved in water, for the polymer to swell and form clumps resulting from the agglomeration of the particles. These clumps, surrounded by a thin gelatinised surface film, are difficult to de-aggregate and dissolve (page 1, third paragraph).

5.2 According to D5, water-soluble polymers are provided in the form of concentrated dispersions which are storage stable up to about 50°C, pumpable and easily dispersible in water, and which comprise a particulate water soluble polymer, at least one water soluble surface active agent and water in an amount less than 30% based on the weight of the total mixture (Claim 1).

5.2.1 The water soluble polymer may be any water soluble or water dispersible polymer having a thickening or flocculant tendency in water, including synthetic polymers, such as high molecular weight poly(meth)acrylamides, especially homopolymers of acrylamide, anionic copolymers derived from acrylamide and an acrylic acid salt, and cationic copolymers of acrylamide, as well as natural and modified gums, such as guar gum, sodium alginate, and carboxymethylcellulose and xanthane gums respectively (page 2, last paragraph to page 3, first paragraph).

5.2.2 The surface active agents may be anionic, cationic, non-ionic or amphoteric. They should have good wetting properties and a HLB value greater than or equal to 10. Preferred surfactants are ethoxylated alcohol phosphates, ethoxylated alkylphenols or "oxo" alcohols and ethoxylated amines (page 3, line 6 to page 4, line 4; page 6, Table I).

5.2.3 The suspensions may contain 20 to 75, preferably 40 to 55 wt% of polymer, with a proportion of polymer to surfactant of 20 - 90/80 - 10, and preferably 60 to 45% of surfactant (page 4, second complete paragraph).

5.2.4 The amount of water, which is preferably at least 15 wt% of the total mixture and 5 to 30% of the polymer and may be present in whole or in part in the surfactant and/or in the polymer, is determined empirically, because if too little water is present, the suspension separates into two phases, and if too much is present, the suspension becomes too viscous (page 4, third and fourth paragraphs).

5.2.5 According to a typical example, a suspension is prepared by agitating in a container the surfactant and water in the desired proportions until a homogeneous solution is obtained, after which the polymer powder is added rapidly and the mixture stirred for a few minutes to provide uniformity.

In Example 3, the polymer is a copolymer of acrylic acid and acrylamide having proportions of particles of size >500µm (45%); 400 to 500µm (15%); and 250 to 400 µm (40%) respectively, the surfactant is an ethoxylated amine of coprah or an ethoxylated nonylphenol, the ratio of polymer:surfactant being 50:50; and water is optionally present in an amount of less than 5% (pages 7 and 8; Table III).

5.2.6 Thus, it is clear that the process of D5 is capable of dispersing polymer particles of appreciable size (well above 20µm), which are generally known to be more difficult to hold in stable suspension than smaller particles.

5.3 Although there was general agreement that D5 constituted the closest state of the art, the precise statement of the technical problem objectively arising from its disclosure was the subject of some discussion during the oral proceedings. In particular, the Appellant, without referring to any specific Article or Rule of the EPC, objected to a reformulation of the technical problem.

Consequently, it is considered appropriate at this point to summarise the main principles applied by the Board to the formulation of such a problem.

5.3.1 According to Rule 27(1)(c) EPC, the description of an application should "disclose the invention, as claimed, in such terms that the technical problem (even if not expressly stated as such) and its solution can be understood, and state any advantageous effects of the invention with reference to the background art". The documents referred to in the description must thus be assumed to reflect the Applicant's knowledge of the relevant background art at the filing date of the application; consequently, the technical problem as first defined is to be regarded as "subjective".

5.3.2 Although it is desirable to take the same approach as the Applicant regarding the definition of the technical problem (T 0246/91 of 14 September 1993, Reasons for the decision, point 4.4; T 0495/91 of 20 July 1993, Reasons for the decision, point 4.2; and T 0741/91 of 22 September 1993, Reasons for the decision, point 3.3; all unpublished in OJ EPO), it is not unusual that the latter may have to be reformulated in view of the documents cited in the search report and/or subsequently relied upon in opposition/appeal proceedings, if these citations represent a closer state of the art than that originally mentioned in the application.

Similarly, the technical problem arising may have further to be reformulated, in particular in less ambitious terms, if it appears in view of experimental evidence that the combination of features in the claim does not solve this problem over the whole area defined in the claim (T 0020/81, OJ EPO 1982, 217).

In both cases, reformulation of the technical problem as originally disclosed, in accordance with Rule 27(1)(c) EPC, in the application or patent in suit (the "subjective" technical problem), on the basis of objectively relevant elements originally not taken into account by the Applicant or Patentee, yields a definition of the "objective" technical problem.

5.3.3 The "objective" technical problem thus established represents the ultimate residue (effect), corresponding to the objective contribution provided by the subject-matter defined in the relevant claim (features).

5.3.4 In the present case, the content of D5 has already been acknowledged, according to Rule 27(1)(c) EPC, in the description of the patent in suit (page 2, line 65 to page 3, line 4) and a technical problem derived in the following terms: "None of these proposals meet the desired objective of the provision of an aqueous suspension of a water soluble or water swellable polymer that is stable and that, when used, does not carry unwanted material, in particular surfactant, into the environment" (page 3, lines 9 to 11).

Thus, in the present case, the "subjective" technical problem and the "objective" technical problem start out from the same (closest) state of the art and should therefore be essentially the same. In this connection, the particles in the "aqueous suspension" according to D5 are exemplified as being of appreciable size, of the order of hundreds of micrometers (section 5.2.6, above).

5.3.5 The objection of the Appellant, that the specific reference to "surfactant" as unwanted material was not mentioned in the statement of problem in the application as originally filed, is irrelevant.

5.3.5.1 Firstly, for the reasons set out in sections 5.3.1 to 5.3.3 above, the statement of objective problem may be changed in the light of the prevailing relevant circumstances. Such a reformulation of the technical problem is not objectionable under Article 123(2) EPC if the problem could be deduced by a person skilled in the art from the application as originally filed (T 0013/84, OJ EPO 86, 253).

In this connection, the polluting effects of surfactants are perhaps the most generally well known of any environmentally undesirable material. In any case, the allowability of this amendment, which was made pre-grant (section 4.1, above), was not disputed.

5.3.5.2 Secondly, the statement of problem in the patent in suit in any case does not depend on the reference to surfactants, since it merely mentions them as examples of unwanted materials.

5.3.6 The further argument of the Appellant, that the statement of the problem would have to involve the replacement of the surfactant, is itself contradicted by the objection of the same party to the mention of "surfactant" in the statement of problem in the patent in suit (section 5.3.5 etc., above). It is, however, in any case untenable, since the replacement of the surfactant itself (as opposed to the avoidance of the problems caused by surfactants) is an aspect of the solution rather than the problem. It is not, as is well established, permitted, according to the problem and solution approach, to formulate the technical problem in terms which contain pointers to the solution (T 0229/85, OJ EPO 1987, 237).

In summary, the mention of "surfactant" in the statement of problem in the patent in suit, whilst being neither objectionable nor unjustified in itself, is also neither essential nor, as a direct parameter, necessarily appropriate to the objective definition of the technical problem.

5.3.7 In view of the above considerations, the objective technical problem arising from the disclosure of D5 is, in the Board's view, to be seen as the definition of an alternative process for providing an aqueous suspension of water soluble or water swellable polymer particles having an appreciable size (at least 20µm), that is stable and that, when used, does not carry undesirable material into the environment.

5.3.8 The solution of this problem proposed according to Claim 1 of the patent in suit is to replace the surfactants in D5 by an aqueous solution containing above 10 wt% but below 70 wt% of an equilibrating agent comprising a water soluble ionic polymer of ethylenically unsaturated monomers, the ratio (dry weight) of the high molecular weight polymer to equilibrating agent being 1:0.3 to 1:10, and the polarity of these polymers being selected in dependence on the ionic character, if any, and type of the high molecular weight gel polymer to be stabilised, such that (a) if the gel polymer is an anionic polymer, then the equilibrating agent polymer is anionic, cationic blended with inorganic salt, or polydiallyldimethyl ammonium chloride; (b) if the gel polymer is a cationic polymer, then the equilibrating agent polymer is cationic, polyethylene imine, polydimethylamine epichlorhydrin, or anionic blended with inorganic salt; (c) if the gel polymer is a non-ionic polymer, then the equilibrating agent polymer is anionic or cationic; and (d) if the gel polymer is a cellulosic or starch polymer, then the equilibrating agent polymer is anionic.

5.3.9 It is evident from the large number of examples and comparisons given in the patent in suit that stable dispersions of appreciable particle size (of the order of 1 000μm) can be established and worked using the claimed measures. Moreover, none of these results has been disputed by the Appellant.

5.3.10 The argument of the Appellant, that the solution proposed simply replaces one environmentally unwanted material (the surfactant) with another (the water soluble polymer of ethylenically unsaturated monomers), is merely an unsupported allegation, since no evidence was led to demonstrate that the presence of low molecular weight water soluble polymer is necessarily undesirable. On the contrary, according to an uncontested submission of the Respondent at the oral proceedings, such "bimodal" compositions may have extremely valuable properties in use. In any case, such polymers are not polluting in the same sense as surfactants typical, say, of D5 would be, if discharged into the environment.

Accordingly, the Board accepts that the claimed measures provide an effective solution of the stated problem.

6. *Novelty*

It was not alleged that the claimed subject-matter lacked novelty. Nor does the Board see any ground for taking a different view.

Consequently, the Board finds the claimed subject-matter to be novel.

7. *Inventive step*

In order to determine the issue of inventive step, it is necessary to establish whether the skilled person, starting from D5, would have expected a stable, workable (e.g. comminutable) aqueous suspension of high molecular weight gel polymer particles of appreciable size (at least 20µm) to be obtained by replacing the surfactants of D5 by ionic polymers of ethylenically unsaturated monomers, where appropriate blended with inorganic salts, in the specific amounts and proportions referred to in section 5.3.8, above.

7.1 There is no suggestion in D5 to replace the surfactants by any other substances, let alone in the relevant amounts, because the only equilibrating agents effectively disclosed for stabilising the high molecular weight gel polymers are surfactants.

Consequently, there is no hint to the solution of the stated problem in the disclosure of D5.

7.2 In order to determine whether the skilled person would have been given a hint to the solution of the stated problem in view of a combination of the disclosure of D5 with that of D3, which was the main thrust of the Appellant's case in the appeal, it is necessary first to establish what this latter document discloses.

7.2.1 According to D3, stable dispersions having good stability and fluidity of a water soluble polymer composition can be prepared by polymerising (a) at least one ethylenically unsaturated monomer capable of forming a water-soluble polymer in an aqueous solution of (b) at least one water-soluble polymer which is different from the polymer derived from the monomer. The aqueous solution used in the polymerisation contains 3 to 150 pbw of the water-soluble polymer (b) per 100 pbw of water, the amount of the monomer (a) being 10 to 150 pbw per 100 pbw of the water, and the weight ratio of (a):(b) being from 5:1 to 1:5 (Claim 1; column 3, lines 18 to 32).

7.2.1.1 The ethylenically unsaturated monomer used for making polymer (a) preferably contains an acroyl group, and may be a (meth)acrylamide, a (meth)acrylic acid or salt thereof, or a (meth)acrylate, e.g. aminoethyl methacrylate (column 4, line 1 to column 5, line 27; Examples 9 to 11).

7.2.1.2 The water soluble polymer (b) may have a molecular weight of 300 to 10 000 000 and preferably contains a functional group in an amount of at least 10 wt%, especially an ether, hydroxyl or carboxyl group, or other groups, and may be polyethyleneimine. Most preferred polymers (b) are polyethylene glycol (hereinafter PEG), polyethylene oxide, polyvinyl alcohol, ethylene glycol/propylene glycol copolymer and polypropylene glycol (hereinafter PPG) (column 5, lines 38 to 65).

7.2.1.3 In this process, the content of polymer (b) in the aqueous solution thereof, the amount of the polymer (a) to be polymerised, and the weight ratio of the monomer (a) to the polymer (b) are important to give the desired aqueous dispersion. If the concentration of polymer (b) in the aqueous solution is too low, it is difficult to obtain low viscosity and good stability. If the concentration is too high, it is difficult to dissolve the polymer (b) in water. If the concentration of the monomer (a) to be polymerised is too low, it is difficult to form the high molecular weight polymer. If it is too high, the viscosity becomes too high for superior stability and flowability (column 5, line 66 to column 6, line 49).

7.2.1.4 The resulting water soluble polymer (a) forms a loose water-containing complex with the water soluble polymer (b) without being dissolved in water. Phase separation occurs between the complex and the aqueous phase to form microscopic particles. As another possibility, since the resulting water soluble polymer (a) and the water soluble polymer (b) originally present do not dissolve in each other, they become subject to phase separation with the progress of the polymerisation, so that the resulting polymer (a) becomes microscopically small globules which disperse in the aqueous solution of the water soluble polymer (b). In each case, a low viscosity aqueous dispersion is formed (column 3, lines 45 to 64).

7.2.1.5 A conventional nonionic, anionic or cationic surfactant, preferably nonionic, may be added in performing the polymerisation reaction (column 7, lines 5 to 9).

Inorganic salts soluble in water are helpful for improving the stability and flowability of the resulting aqueous dispersion, presumably because the inorganic salt takes up moisture from the resulting polymer particles to compact and stabilise them (column 7, lines 25 to 31).

An organic solvent soluble in water but incapable of dissolving the resulting polymer may also be added, which contributes to the improvement of the stability and flowability of the resulting aqueous dispersion, the mechanism for this presumably being the same as in the case of adding inorganic salts (column 7, lines 46 to 55).

7.2.1.6 According to Example 1, 100g of water and 20g of PEG (molecular weight 20 000) were mixed to form a solution and 30g of acrylamide was added. While purging with nitrogen gas, 1.2ml of a 0.84% aqueous solution ammonium persulphate and 3ml of a 2% aqueous solution of triethanolamine were added as initiators and polymerisation was performed while stirring the system at 45°C for 5h. Fine particles formed, and stirring could easily be continued. The resultant aqueous dispersion was stable after one month and, when mixed with water to a concentration of polyacrylamide of 1%, became, after stirring the mixture for 1h, a solution having a viscosity comparable with that of a commercially available high molecular weight polyacrylamide powder having a molecular weight of about 500 million (column 7, line 62 to column 8, line 49).

In Comparative Example 1, without the use of PEG, the viscosity of the mixture rose, and stirring failed.

In Example 5, a solution was formed by mixing 100g of water, 15g of a PEG (molecular weight 6 000), 5g of PPG (molecular weight 1 000) and 5g of polyethyleneimine. To this solution were added 20g acrylamide and 20g of aminoethyl methacrylate, and furthermore, 3g of a cationic surfactant. Using 1 ml of a 0.75% aqueous solution of hydrogen peroxide and

3ml of a 2% aqueous solution of sodium bisulphite, the polymerisation was carried out as in Example 1 and an aqueous dispersion having a viscosity of 580 poises and being stable for more than 2 months was obtained.

According to Example 9, 100g of water, 10g of polyvinyl alcohol, 1g of poly(sodium acrylate), 10g of acrylamide and 10g of aminoethyl methacrylate were mixed to form a solution and polymerised as in Example 1, the resulting dispersion having a viscosity of 470 poises (column 10, lines 19 to 34, especially first column of Table 3).

Thus, the particles produced by the process according to D3 are "microscopic" (section 7.2.1.4, above).

7.2.2 Documents D6, D7, D8 filed in evidence by the Appellant as well as D9 accompanying the reply of the Respondent filed on 12 February 1996 were intended further to elucidate the nature of the particles actually obtained when working the process according to D3. They will be considered in turn.

7.2.2.1 Document D6 is a report containing details of six experiments carried out in accordance with the teaching of D3. In particular Experiment 6 corresponds to Example 1 of D3 (report, pages 2, 3). According to Experiment 6, "After about three hours from the start (of polymerisation) there appeared gradually coarse particles in the reaction mixture, which were clusters of fine particles. Finally the reaction mixture turned into agglomerates of white particles like sherbet."

In Experiments 1 to 4, the product is described as a "transparent jelly-like mass", without any particles having been formed, and, in the remaining relevant Experiment 5, "clusters of fine particles" turned into "non-fluid agglomerates of semi-transparent particles".

Consequently, to the extent that particles are formed at all, they are evidently in the form of agglomerates.

7.2.2.2 In this connection, D7 shows somewhat diffuse objects which could be regarded as bodies of some kind, having a size of several tens of microns, but having an indefinite outline and mealy interior structure, which is entirely consistent with the description in D6 of the particles being "agglomerates".

7.2.2.3 Document D8 is a copy from the laboratory journal of the Appellant company which shows, on page 99, a report of a procedure which corresponds to a repetition of Example 1 of D3. A sample of the product of such an experiment was provided to the Board with the label "DP/AS 871 A". Although other, powdered samples derived from this source were submitted under the designations "DP/AS 871 B" (precipitated from acetone) and "DP/AS 872" (dried overnight), it is "DP/AS 871 A" which is considered relevant since it is the product actually obtained by carrying out the steps described in Example 1 of D3. It is a colourless, viscous, translucent material in which small bodies of a semolina-like appearance and of different sizes can be seen stably suspended.

These suspended bodies are certainly visible to the naked eye, but their appearance is consistent with those shown in D7, which are described in D6 as "agglomerates".

7.2.2.4 Document D8 also includes an original photomicrograph of the product "DP/AS 871 A", supplied by the Appellant. Inspection shows an assembly of somewhat indistinct globular shapes with a granular or spongiform interior structure. The sheet accompanying the photomicrographs refers to these shapes as "motifs" of dimensions between 20 and 100µm. The French word "motif" in this connection does not necessarily imply a particle, though some degree of globular coherence is evident from the picture.

Thus the evidence of D8 does not contradict the aggregated form referred to in D6 and shown in D7.

7.2.2.5 The evidence (D9) provided in reply by the Respondent also contains, inter alia, both light and scanning electron microscope photographs of the same sample "DP/AS 871 A". Inspection of these as well as the commentary provided in the accompanying letter of 12 February 1996 by the Respondent shows that all the "gel particles" have a granular surface consistent with agglomeration of much smaller particles (letter, page 1, last paragraph).

7.2.2.6 According to an experimental report filed with the same letter of the Respondent, an attempt to repeat the essential teaching of Example 1 of D3 resulted in a polymer product which was an opaque gel (report, Project No. 466, page 013 and page 014).

7.2.2.7 In summary, the balance of the evidence, and particularly the written evidence according to D6, upon which, in view of its independent source, the Board is inclined to place greatest reliance, indicates that the suspended bodies, when observable in the products of repetition of the process of Example 1 of D3, whilst possibly being a gel polymer of some kind, are in fact "agglomerates" of much finer ultimate particles.

In particular, whilst the "agglomerates" may have a size around, or even exceeding 20µm, the discrete particles of which they are ultimately made up are far below this size, and certainly invisible to the naked eye.

In other words, what is said in the text of D3 itself, which describes the particles formed as "microscopic", i.e. invisible to the naked eye, is entirely supported by the evidence of documents D6 to D9.

7.2.2.8 The argument of the Appellant, that the term "microscopic" is imprecise for the measurement of particle sizes, does not alter the fact that the resulting ultimate particles evidently have a size far below 20µm.

7.2.2.9 Furthermore, according to the process disclosed in D3, these "microscopic" particles are formed spontaneously at the stage in the polymerisation process where phase separation occurs. At this point, however, polymerisation ceases and there is no mechanism by which the precipitated particles can grow larger.

Consequently, the "microscopic" size of the particles produced by the process of D3 represents a ceiling on the particle size obtainable by this technique.

7.3 This is in contrast, however, to the requirement of the technical problem, according to which the gel particles necessarily have a size of at least 20µm, and are preferably larger than this, the working step in the method of Claim 1 being inter alia a comminution step, i.e. one reducing the size of a larger gel, whilst nevertheless preserving a minimum particle size of at least 20µm.

7.4 The argument of the Appellant at the oral proceedings, that the "gel particles" of the patent in suit were not claimed as being homogeneous, and therefore, by implication, could themselves be agglomerates, is not convincing, because it is directly derivable from the terms of Claim 1 of the patent in suit itself, that the gel particles are in a liquid phase which substantially prevents agglomeration.

7.4.1 Even if there were any doubt about this issue, it is clear from the description of the patent in suit (which may, in such an event, be used, in accordance with Article 69(1) EPC, as a "dictionary" guide to interpret the scope of the claims), that the aqueous gel granules are generally fragments obtained by fragmentation of a mass of rigid aqueous gel (page 4, lines 16, 17; page 5, line 48) and that the desired particles are "discrete rigid gel particles" (page 6, line 49).

7.4.2 The further argument of the Appellant at the oral proceedings, that the description could not be used to provide a limiting effect on the claim, is not appropriate, because there is no embodiment using agglomerated particles in the specification.

In other words, the polymer particles with which the patent in suit is concerned have a size of at least 20µm, without being agglomerated.

7.5 The argument of the Appellant, that the process of D3 was parallel to that of D5 and therefore, as canvassed at the oral proceedings, "directly transplantable into D5" or "a clone of D5", is unconvincing, because the technique of D3 starts from a monomer and stops at the point of phase separation where the polymer particles formed are still "microscopic" (section 7.2.1.4, above).

7.6 In summary, the technique of D3 is concerned with stabilising particles **up to** a size which falls short of the minimum required by the technical problem. Consequently, it would not be expected to have any relevance to, let alone to offer a prospect of success in the solution of the stated problem.

7.7 Even if it were accepted, in favour of the Appellant, that at the lower limit of particle size covered by Claim 1 of the patent in suit, namely 20µm, the particles could be regarded as no different from the maximum "microscopic" particle size achievable according to D3, and for particles of this lower limiting size, the disclosure of D3 was therefore relevant to the solution of the technical problem, the question would still arise as to whether the teaching of D3 would lead the skilled person in an obvious way to the solution as claimed in the patent in suit.

7.7.1 Whilst the definition of the polymers (b) which can be used, according to D3, to stabilise the high molecular weight polymers (a) is extremely broad in the claims, requiring in effect only that it is different from the polymer (a), the quantities used furthermore overlapping those forming the solution of the stated problem, and even cationic polymers such as polyethyleneimine being mentioned, nevertheless the ranges of the former do not fully encompass those of the latter.

Hence, the solution of the technical problem cannot be regarded as a selection from D3.

7.7.2 In any case, it is clear from the description and examples of D3 that nonionic polymers, in particular PEG are most preferred (section 7.2.1.2, above). Indeed, according to the examples only nonionic polymers (b) are used in quantities corresponding to those required for the solution of the stated problem. In those examples which do mention the use of ionic polymers (b), they are only used as a supplement to a much larger quantity of nonionic polymer. For instance, in Example 5, a total of 20g nonionic surfactant (PEG/PPG) to 5g polyethyleneimine is used; in Example 9, 10 g of nonionic polymer (polyvinyl alcohol) is used compared with 1g of anionic (poly-sodium acrylate).

Thus, on the one hand, the quantities of ionic polymers taught in D3 fall far below those necessary for the solution of the stated problem, and, on the other, the nonionic polymers (b) which are taught for use in the relevant quantities do not correspond to the solution of the stated problem.

7.7.3 The argument of the Appellant, that it was merely a matter of trial and error to arrive at the amounts and types of polymers forming the solution of the stated problem, is not convincing, since it is not normal procedure to go against the preferred teaching of a document. This is particularly so where, as in the present case, it is evident that not all combinations will lead to a dispersion of any kind, let alone a stable dispersion corresponding to the solution of the technical problem.

On the contrary, it is clear from the experimental evidence D9 filed by the Respondent, the accuracy of which was not challenged by the Appellant, that even the smallest divergences from the exact teaching of the examples of D3, such as the use of a PEG of somewhat different molecular weight, can result in complete failure to obtain anything but a solid gel. A similar conclusion can be drawn from the evidence of Experiment 5 in D6 filed by the Appellant, in which Example 21 of D3 was followed as far as possible and non-fluid agglomerates were obtained (section 7.2.2.1, above).

Thus, it is evident that the freedom of the skilled person to choose randomly the quantities and combinations of stabilising polymers with any expectation of success is severely restricted in practice by the unpredictability of the results which will be obtained. In these circumstances, the skilled person is correspondingly more dependent on the guidance given by the disclosure concerned, which, in the case of D3, is, as already established (section 7.7.2 above), in a direction away from the solution of the stated problem.

7.7.4 The further argument of the Appellant at the oral proceedings, that the skilled person would have realised, from the disclosure relating to the optional addition of inorganic salts (section 7.2.1.5, above), that the mechanism of stabilisation of the water containing complex was necessarily by osmosis, so that further stabilisation could be achieved using ionic polymers rather than the preferred non-ionic polymers, is not supported by the disclosure in D3, whether relating to the complex itself, which offers no explanation of the stability, or even to the addition of the inorganic salts themselves. On the contrary, the latter only speculates that the addition is helpful for improving the stability "presumably because the inorganic salt takes up moisture from the resulting polymer particles to compact and stabilize the individual polymer particles." In particular, there is no mention at all of osmosis (column 7, lines 28 to 31).

Furthermore, the subsequent reference in the same document to the addition of organic solvents for the same purpose (column 7, lines 53 to 55) states that "The mechanism for this is presumably the same as in the case of adding inorganic salts."

Quite apart from the absence of any reference to a semi-permeable membrane, diffusion through which is normally regarded as an essential element in osmosis, the concept that the same effect could be achieved by both increasing the solute concentration in the liquid phase (addition of inorganic salt) and decreasing the solute concentration (addition of solvent) is, in the Board's view, wholly inconsistent with the general understanding of osmosis, which always involves a diffusion pressure in the direction of greater solute concentration.

Consequently, there is no reason for supposing that the operative stabilising mechanism in the process of D3 is osmosis.

7.7.5 The argument of the same party, that there was "no other possible mechanism than osmosis" is thus a blanket assertion unsupported by so much as a shred of evidence and, as pointed out above, is also inconsistent with the disclosure of D3 itself.

7.7.6 Consequently, the skilled person would have derived no hint from D3 to increase the quantity of ionic polymer relative to nonionic polymer in order to improve the stability of the polymer dispersion.

In other words, the solution of the technical problem does not arise in an obvious way in the light of the disclosure of D3, even when considered in combination with D5.

Consequently, the subject-matter of Claim 1 does not arise in an obvious way from the documents of the state of the art.

7.8 It was, however, a major plank in the Appellant's arguments that the obviousness of the claimed equilibrating agents could be derived from the presentation, in the application as originally filed, of the surfactants and the equilibrating agents forming the solution of the stated problem as "perfectly equivalent" (Section IV. (e), above). The inventor, so the argument ran, was also a skilled person, and if it was clear that the equilibrating agents were simple alternatives to surfactants for the purpose of stabilising gel polymer dispersions, then it was also clear to the skilled person at the priority date to make such a substitution. In such a case, the disclaiming of one or two obvious alternatives, whilst it might establish novelty, could not, according to the case law of the EPO (T 0170/87, OJ EPO 1989, 441), establish an inventive step.

This line of argument is based on a number of misconceptions, which need to be dealt with in turn.

7.8.1 In the first place, closer examination of the text of the application as originally filed indicates that the sentence "Instead of using water soluble polymers as equilibrating agents it is also possible to use equivalent water soluble surfactants in similar amounts.", relied upon by the Appellant, does not amount to a statement that such polymers are equivalent to surfactants, but rather, taken in context, that when a surfactant is used instead of a polymer, the surfactant must be of similar polarity to the polymer (page 18, lines 15 to 33).

Furthermore, seven out of the eight examples in the original application disclose the use of a polymer alone. It is in any case stated in the text that the equilibrating agent used is preferably a polymer (page 14, line 15; page 15, lines 4 to 7; 16 to 23).

Thus, whilst surfactants were presented as alternatives to polymers in the disclosure of the invention in the application as filed, there was no indication that they were equally preferred, or indeed equally advantageous. On the contrary, it is clear that the polymers had been presented as preferred over surfactants right from the start in the application as filed.

The Appellant's statement at the oral proceedings that they were disclosed as "perfectly equivalent" is therefore not justified.

7.8.2 Even if they had been so presented, however, the allowability of the amendment, made before grant, by which the surfactant embodiment had been excised from Claim 1 had never been called into question and was indeed repeatedly and explicitly acknowledged by the Appellant at the oral proceedings (section 4.1, above).

It should be emphasised in this connection that, whilst this restriction of Claim 1 certainly resulted in the surfactant embodiment being disclaimed (since everything which is not claimed is effectively disclaimed), the amendment was by way of positive limitation to specified kinds and amounts of polymers which had been originally disclosed in the application itself, and not simply by excluding surfactants. The amendment was therefore not by way of "disclaimer".

Consequently, it cannot be an objection to it that it resulted in the establishment of an inventive step.

7.8.3 In any case, Article 56 EPC states, "An invention shall be considered as involving an inventive step if, having regard to the state of the art, it is not obvious to a person skilled in the art." What is presented as the invention in the application or patent in suit cannot, however, be assumed to be state of the art.

Consequently, if, as in the present case, the only source of the information relied upon (as to a possible interchangeability of surfactant and water soluble polymer) is the enabling description of the application or patent in suit itself, this does not fall within the terms of Article 56 EPC and cannot, therefore, be used in the assessment of inventive step.

7.8.4 Finally, the argument that what would have been obvious to the inventor must also have been obvious to the person skilled in the art, because the inventor will normally also be a person skilled in the art, rests on a fundamental confusion between the terms "inventor" and "person skilled in the art".

There are a number of generally accepted definitions of the meaning in European patent law of the term "person skilled in the art", e.g. in Schulte, "Patentgesetz mit EPÜ" (5th Edition, Carl Heymanns Verlag, 1994, page 116, paragraph 4.10), according to which he is the expert in the relevant field, who is possessed of average knowledge and ability, i.e. not an exceptional, outstanding or brilliant expert, and in the EPO Guidelines (C-IV, 9.6), according to which he is presumed to be "an ordinary practitioner".

Whilst such generally accepted definitions of the notional "person skilled in the art" do not always use identical language to define the qualities of such a person, they have one thing in common, namely that none of them suggests that he is possessed of any inventive capability. On the contrary, it is the presence of such capability in the inventor, which sets him apart from the notional skilled person.

Indeed, this must be so, since inventions, no matter how surprising or inventive they turn out to be, were, when made, most probably obvious to one person, namely the inventor himself. Hence, measured against the yardstick of such an individual's capability, most if not all technical developments would not involve an inventive step within the meaning of Article 56 EPC.

Consequently, for the purposes of assessing inventive step, the right criterion to be applied is not whether the claimed subject-matter would have been obvious to an inventive person, let alone the inventor himself, but rather whether it would have been obvious to a competent but not inventive person, namely the notional "person skilled in the art".

7.9 The general criticism of the Appellant, that there was a conflict of evidence between the disclosure in the patent in suit as granted of equilibrating agents which were non-ionic polymers and their subsequent deletion following the filing on 22 September 1992 of a Declaration by Mr. Skinner, that such polymers had been found less effective than ionic polymers, is not relevant, since no objection was raised to the allowability of the amendment (section 4.4 above) and the equilibrating agent polymers thus deleted did not correspond to those to which the claims of the patent in suit are now limited. In any case, the Board sees no reason to call into question the evidence of a qualified expert such as Mr. Skinner, particularly where, as here, the criticism is unaccompanied by any concrete evidence, and amounts therefore to nothing more than a mere allegation.

7.10 In summary, the solution of the technical problem in this case did not arise in an obvious way for the person skilled in the art having regard to the state of the art. The subject-matter of Claim 1 therefore involves an inventive step. By the same token, the subject-matter of Claims 2 to 16, which are directly or indirectly dependent on Claim 1, also involves an inventive step.

8. In view of these findings, it is not necessary to consider the auxiliary request.

Order

For these reasons it is decided that:

1. The Opposition Division's decision is set aside.

2. The case is remitted to the Opposition Division with the order to maintain the patent with the claims and description attached to the decision under appeal but subject to the amendments submitted by way of Main Request on 12 January 1996 and shown on page 12, labelled "Main Request" attached thereto and after the description has been adapted, if necessary.

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The Chairman:

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