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D E C I S I O N
of 9 January 2001

Case Number: T 0921/96 - 3.3.7

Application Number: 87113130.6

Publication Number: 0259842

IPC: C09J 123/00

Language of the proceedings: EN

Title of invention:
Aqueous pressure sensitive adhesive compositions

Patentee:
S.C. JOHNSON COMMERCIAL MARKETS, INC.

Opponent:
BASF Aktiengesellschaft

Headword:
-

Relevant legal provisions:
EPC Art. 123(2), 56

Keyword:
"Inventive step - problem and solution"
"Amendments - added subject-matter - main request (yes)"

Decisions cited:
T 0219/83

Catchword:
-

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Case Number: T 0921/96 - 3.3.7

D E C I S I O N
of the Technical Board of Appeal 3.3.7
of 9 January 2001

Appellant: (Proprietor of the patent)
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Respondent: (Opponent)
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Representative:
-

Decision under appeal:
Decision of the Opposition Division of the European Patent Office dated 5 July 1996 and issued in writing on 5 August 1996, revoking European patent No. 0 259 842 pursuant to Article 102(1) EPC.

Composition of the Board:

Chairman: R. E. Teschemacher
Members: B. J. M. Struif
R. Young

Summary of Facts and Submissions

I. The mention of grant of European patent No. 0 259 842 in respect to European patent application No. 87113130.6, filed on 8 September 1987 and claiming a US priority of 9 September 1986 (US 905593) was published on 24 November 1993 (Bulletin 93/47). Claim 1 read as follows:

"An adhesive composition comprising an aqueous polymer emulsion, characterized by the combination of water and 30-60% by weight of a polymer comprising at least 1 vinyl monomer wherein at least 40% of said vinyl monomer is an alkyl acrylate or alkyl methacrylate, and characterized in that said polymer is prepared by:
(a) polymerizing a first monomer charge comprising at least one vinylic monomer selected from the group consisting of styrene, alpha methyl styrene, tetraethylene glycol diacrylate, hydroxyethyl methacrylate, methylmethacrylate, ethylacrylate, methylacrylate, propylacrylates, propylmethacrylates, hexylacrylates, hexylmethacrylates and vinyl acetate which is suitable for emulsion polymerization in the presence of a surfactant, and an initiator to initiate emulsion polymerization of said first monomer charge and, thereafter,
(b) adding to the polymerization mixture at least one resin, said one resin being selected from ethylenically unsaturated monomers such as olefins, mono vinylidene aromatics, alpha, beta-ethylenically unsaturated carboxylic acids and esters thereof and ethylenically unsaturated dicarboxylic anhyrides, water dispersible or water dispersed polyurethanes, aliphatic polyurethane containing 30% solids, water dispersible copolymers of ethylene and acrylic acid,

and vinyl monomers selected from one or more of acrylic acid and esters and derivatives thereof, methacrylic acid and esters and derivatives thereof, styrene, alphamethyl styrene, vinyl toluene, ethylene, polyesters and urethanes said resin having a molecular weight ranging from 500 to 20,000;
c) said composition having a viscosity of less than 3,500 centipoise."

Claims 2 to 6 were dependent claims directed to elaborations of the adhesive composition of claim 1.

II. Notice of opposition was filed on 13 July 1994 on the grounds of lack of novelty and lack of inventive step under 100 (a) EPC. The opposition was supported in particular by the following document:

D1: JP-B-37348/83, considered in the form of a German translation.

III. By a decision announced at oral proceedings held on 5 July 1996 and issued in writing on 5 August 1996, the opposition division revoked the patent.

The decision was based on a main request and two auxiliary requests in which a change of category from granted product claims directed to an adhesive composition to process claims directed to a method of forming a pressure-sensitive adhesive composition had been made.

Claim 1 of the main request read as follows:

"A method of forming a pressure-sensitive adhesive composition comprising an aqueous polymer emulsion

which is a combination of water and 30-60% by weight of an acrylic polymer comprising at least one vinyl monomer wherein 40% of said vinyl monomer is an alkyl acrylate or alkyl methacrylate, the method comprising:
(a) polymerising a first monomer charge comprising said at least one alkyl acrylate or alkyl methacrylate, any further vinylic monomer being selected from styrene, alpha methyl styrene, tetraethylene glycol diacrylate, hydroxyethyl methacrylate, or vinyl acetate, said vinylic monomers being suitable for emulsion polymerization in the presence of a surfactant to form a pressure sensitive adhesive, and an initiator to initiate emulsion polymerisation of said first monomer charge, and, thereafter,
(b) adding to the acrylic polymerization mixture, after initiation of the emulsion polymerisation but before the emulsion polymerisation is substantially completed, at least one support resin, said one resin being selected from ethylenically unsaturated monomers such as olefins, mono vinylidene aromatics, alpha, beta-ethylenically unsaturated carboxylic acids and esters thereof and ethylenically unsaturated dicarboxylic anhydrides, water dispersible or water dispersed polyurethanes, aliphatic polyurethane containing 30% solids, water dispersible copolymers of ethylene and acrylic acid, and vinyl monomers selected from one or more of acrylic acid and esters and derivatives thereof, methacrylic acid and esters and derivatives thereof, styrene, alphamethyl styrene, vinyl toluene, ethylene, polyesters and urethanes, said resin having a molecular weight ranging from 500 to 20,000; and
c) combining the resulting polymer with water to form a composition containing said content of said

resulting acrylic polymer, said composition having a viscosity of less than 3,500 centipoise."

Claims 2 to 6 as granted remained unamended.

The opposition division considered the main request to contravene Article 123(3) EPC because it did not require the obligatory presence of the specific vinyl monomers listed in claim 1 as granted under feature (a). The main request protected for example specific acrylate homopolymers which the claims as granted did not.

Claim 1 of auxiliary request I differed from claim 1 of the main request in that in step (a) the wording "any further vinyl monomer being selected" was replaced by the term "and a vinylic monomer selected" and in that between the terms "wherein" and "40%" the term "at least" was inserted. Claim 1 of auxiliary request II differed from claim 1 of auxiliary request I in that step (a) was replaced by the formulation of step (a) according to the granted version. Although both auxiliary requests were considered to meet the requirements of Articles 123(2) and (3) EPC the requests lacked an inventive step for the following reasons:

The disclosure of D1, by common consent the closest prior art, disclosed the preparation of a pressure sensitive adhesive composition by adding a support resin to an acrylic polymer mixture after its polymerization. Claim 1 of all requests differed from D1 in that the "support resin" was added to the polymerization mixture during polymerization. As the distinguishing feature was not connected with a

technical effect, however, the problem was to provide a mere alternative to the process for the production of a pressure sensitive adhesive material. Since the support resin could be present as an "inert" material and since it was not critical, whether the support was added at the beginning of the polymerization reaction or at the end thereof, the skilled person would not expect any adverse interaction of an "inert" support resin with the acrylic polymer. Thus, the addition of the "support resin" after initiation of the emulsion polymerization but before completion of said reaction was a conventional measure.

IV. On 2 October 1996, a notice of appeal against the above decision was filed, the prescribed fee being paid on the same day. In the statement of grounds of appeal filed on 12 December 1996 the appellant (patentee) filed a main request, four auxiliary requests and an experimental report (attachment A). He argued in substance as to inventive step as follows:

The conclusion of the decision under appeal according to which the distinguishing feature was not connected with a technical effect had been wrong. Although the decision referred to the nature of the resin support as being inert and discussed the possible chemical interaction with the vinylic monomer, the issue to be decided was, whether the time point of addition of the support polymer had an impact on the properties. Whilst the decision referred to the timing for addition as not being crucial, the addition of the support resin after initiating the emulsion polymerization was indeed crucial for providing a technical effect, as was shown by the experimental report filed on 12 December 1996, in which a

polyurethane dispersion (Spensol L54) or a styrene acrylic resin (Joncryl 586) had been added either in front (before commencing the emulsion polymerization; comparative samples 1 and 3, respectively) or during emulsion polymerization (samples 2 and 4, respectively).

V. The respondent (opponent) disagreed, in a submission filed on 30 January 1997, with the arguments of the appellant and submitted the following objections with regard to inventive step:

The appellant's experimental report filed on 12 December 1996 did not include a comparison with D1 and did not allow a conclusion whether the compositions showed Newtonian-like rheological properties or not. Furthermore, the adhesive properties in comparative sample 1 were better than in sample 2 according to the claimed invention. Since the time point of addition of the support resin during polymerization had not been defined and since the definition of the support material was vague, the achievement of the relevant effect of Newtonian-like rheological properties over the whole ambit of the claims was hardly possible.

VI. In response to the statement of the respondent the appellant filed a further experimental report on 10 November 1997 (Annex II) comparing the viscosities of samples produced according to the claimed teaching with a cold blend of an already formed adhesive composition and a support resin to demonstrate improved shear stability, i.e. Newtonian-like properties in the former. As the support resin in D1 was added only after completion of the polymerization reaction, the claimed teaching had not been made

obvious having regard to the cited prior art.

VII. With a communication issued on 14 November 2000 the board expressed a preliminary provisional view on the admissibility of the claims of the appellant's requests filed on 12 December 1996 under Rule 57(a), Articles 123(2) and (3), and Article 84 EPC having regard to the amendments made for the change of category from product-by-process claims as granted to process-type claims.

VIII. With a submission faxed on 28 December 2000 the appellant filed further sets of claims forming a new main request and four auxiliary requests I to IV to replace the requests filed on 12 December 1996. In all requests a change of category from product claims to process claims had been maintained.

IX. Oral proceedings were held on 9 January 2001. At the oral proceedings, and after discussion of the main and first to fourth auxiliary requests in particular in relation to their formal allowability under Articles 84, 123(2) and (3) and Rule 57a EPC, as foreshadowed in the communication of the board issued on 14 November 2000, the appellant submitted new auxiliary requests 5 and 6 and abandoned the previous main request and first to third auxiliary requests, filed on 28 December 2000; auxiliary request 5 thus becoming the final main request and auxiliary request 6 the final first auxiliary request. Claim 1 of this final main request (a set of claims 1 to 6) read as follows:

"An adhesive composition comprising an aqueous polymer emulsion, characterized by the combination of water

and 30-60% by weight of a polymer comprising at least 1 vinyl monomer wherein at least 40% of said vinyl monomer is an alkyl acrylate or alkyl methacrylate, and characterized in that said polymer is prepared by:
(a) polymerizing a first monomer charge of the alkyl acrylate or alkyl methacrylate and at least one vinylic monomer selected from the group consisting of styrene, alpha methyl styrene, tetraethylene glycol diacrylate, hydroxyethyl methacrylate, methylmethacrylate, ethylacrylate, methylacrylate, propylacrylates, propylmethacrylates, hexylacrylates, hexylmethacrylates and vinyl acetate which is suitable for emulsion polymerization in the presence of a surfactant, and an initiator to initiate emulsion polymerization of said first monomer charge and, thereafter,
(b) adding to the polymerization mixture at least one support resin after initiation of the emulsion polymerisation reaction but before the emulsion polymerisation reaction is substantially complete, said one support resin being selected from ethylenically unsaturated monomers such as olefins, mono vinylidene aromatics, alpha, beta-ethylenically unsaturated carboxylic acids and esters thereof and ethylenically unsaturated dicarboxylic anhyrides, water dispersible or water dispersed polyurethanes, aliphatic polyurethane containing 30% solids, water dispersible copolymers of ethylene and acrylic acid, and vinyl monomers selected from one or more of acrylic acid and esters and derivatives thereof, methacrylic acid and esters and derivatives thereof, styrene, alphamethyl styrene, vinyl toluene, ethylene, polyesters and urethanes said resin having a molecular weight ranging from 500 to 20,000;
c) said composition having a viscosity of less than

3,500 centipoise."

Claims 2 to 6 corresponded to claims 2 to 6, respectively as granted.

Claim 1 of the new first auxiliary request, corresponding to auxiliary request 6 filed at the oral proceedings, differed from that of the main request (corresponding to auxiliary request 5 filed at the oral proceedings) in that, in feature (a) the phrase "of the alkyl acrylate or alkyl methacrylate and" was replaced by the term "comprising" so that feature (a) of claim 1 as granted was completely restored.

Whilst the respondent regarded the final main request as being open to objection under 123 (2) EPC, neither it nor the board raised any formal objections to the final first auxiliary request (auxiliary request 6). Consequently, inventive step was discussed in relation to this request.

X. The appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis of the main request, corresponding to auxiliary request 5 filed at the oral proceedings or alternatively on the basis of the first auxiliary request, corresponding to auxiliary request 6 filed at the oral proceedings or failing this, on the basis of auxiliary request IV filed with the submission of 28 December 2000.

XI. The respondent requested that the appeal be dismissed.

Reasons for the Decision

1. The appeal is admissible

2. *Admissibility of claim 1 of the main request*

According to Article 123(2) EPC a European Patent may not be amended in such a way that it contains subject matter which extends beyond the content of the application as filed. The question to be decided is whether the amendment in step (a) of claim 1 can be directly und unambiguously derived from the application as filed even when account is taken what is implicit to the person skilled in the art.

According to this amendment a first monomer charge "of the alkyl acrylate or alkyl methacrylate and at least one vinylic monomer", the latter being selected from a specific group, listed in sub-paragraph (a) of the claim, is polymerized. Thus, the amendment defines in relation to the first monomer charge, a combination of the alkyl acrylate or alkyl methacrylate monomers with the "at least one vinylic monomer" as listed under (a). No such combination is, however, referred to in the specification of the patent as granted or in the documents of the application as originally filed.

2.1 The passages in the text of the application as filed, relied upon by the appellant to show that the amended definition could be at least implicitly derived from the documents as originally filed, including claim 2, the general description and the examples, do not alter the position for the following reasons.

2.1.1 According to pages 9 and 10, bridging paragraph, of the application as filed, "The acrylic polymer emulsion of the present invention is a polymer

comprising one or more vinylic monomers wherein at least about 40% by weight of the polymer is an alkyl acrylate or alkyl methacrylate or mixtures ...". This phraseology is similar to the version of claim 1 as originally filed and as granted, defining "a polymer comprising at least 1 vinyl monomer wherein at least 40 % by weight of said vinyl monomer is an alkyl acrylate or alkyl methacrylate" and emphasizes that the alkyl acrylate or alkyl methacrylate refers to the composition of the polymer emulsion. There is, however, no reference to a "first monomer charge".

2.1.2. A similar lack of contextual connection between the alkyl acrylate or alkyl methacrylate monomers on the one hand and the first monomer charge on the other is evident from granted dependent claim 2, which is identical to claim 2 as filed and relates to preferred "alkyl acrylate or alkyl methacrylate" monomers but without mention of the first monomer charge. Thus, from the above disclosure no specific context can be derived between the "alkyl acrylate or alkyl methacrylate monomers" and the "first monomer charge".

2.1.3 Although the sentence: "The vinylic monomers employed in the acrylic emulsion polymer in addition to alkylacrylate can be any vinylic monomer" (page 10, lines 7 to 9) and the following sentence "These vinylic monomers are copolymerized with the alkylacrylate..." admittedly refer to a combination of the alkylacrylate monomers and the specific vinylic monomers listed in step (a) of granted claim 1 (page 10, lines 17 to 24 as filed) these sentences are also not related to any "first monomer charge" and in particular do not amount to a statement that the "alkylacrylate and alkylmethacrylate" and the listed

"vinylic monomers" are to be present in combination in the "first monomer charge" during polymerization.

2.1.4 Nor does the general concept for carrying out emulsion polymerization (pages 10 and 11, bridging paragraph), which only refers to a non-defined "monomer mixture", make available any disclosure with respect to the type of monomers used in the "first monomer charge".

2.1.5 Finally, the sentence that the "precharge should contain all of the monomers, which will be solubilized by the alkali" (page 12, lines 27 to 34) makes reference to monomers which are neither covered by the term "alkyl acrylate or alkyl methacrylate" nor included in the list of the specified vinylic monomers, so that this passage does not provide any support for the amendment effected.

2.1.6 As far as the appellant referred to the examples of the application as originally filed, these are fragmented in several "parts A to H" including those containing monomers (parts A, D and H (or G)). Although in each of the examples 1 to 3 parts B and D contain the same type of monomers in the same weight ratio, part B is first initiated by means of part C (containing an initiator) before part D is introduced into the polymerization mixture. Thus, there is no reference in the examples whether part B alone or parts B and D together may form the "first monomer charge". But even if parts B and D together were to be regarded as a "first monomer charge", these specific monomers do not support the generality of the combinations presented in the amended claim 1.

Hence, from this exemplified disclosure, it can

neither explicitly nor implicitly be derived, that in general the "alkyl acrylate or alkyl methacrylate monomers" should be present in combination with the specified list of vinylic monomers in the "first monomer charge".

2.1.7 In summary, there is no general context, in the documents as originally filed, between the vinyl monomers (alkyl acrylate or alkyl methacrylate) present in the final emulsion polymer on the one hand and the vinylic monomers which should form a "first monomer charge" on the other (even if the terms "vinyl" and "vinylic" are regarded as being used interchangeably), from which the amendment effected in claim 1 of the main request could be directly and unambiguously derived.

2.1.8 Consequently, the amendment in step (a) of claim 1 of the main request violates Article 123(2) EPC.

2.2 The further argument of the appellant, that the polymer part of claim 1 must have a correspondence in the process part thereof to make clear where the alkyl acrylates or methacrylates are introduced into the process, is regarded by the board as somewhat subjective in nature, and in any case not such as to justify amendments, which are otherwise unallowable, for the reasons given (section 2.1. above).

2.3 Hence, the main request is not allowable.

3. *Admissibility of the first auxiliary request*

3.1 In claim 1, feature (a) has been restored to the form as granted. Such an amendment clearly does not involve

the addition of subject-matter or any broadening of scope, and indeed no formal objections have been raised by the respondent.

3.2 The amendment in feature (b) is supported by page 4, lines 27 to 29 of the application as filed corresponding to page 3, lines 15 and 16 of the patent as granted and limits the time point at which the support resin is added.

3.3 Consequently, the subject matter of the first auxiliary request meets the requirements of Article 123(2) and (3) EPC.

4. *Patent in suit; the technical problem (first auxiliary request)*

The patent in suit is concerned with an adhesive composition having a viscosity of less than 3,500 centipoise comprising an aqueous polymer emulsion of water and 30-60% by weight of a polymer comprising at least 1 vinyl monomer wherein at least 40% of said vinyl monomer is an alkyl acrylate or alkyl methacrylate, and wherein the polymer is prepared by:
(a) polymerizing a first monomer charge comprising at least one specified vinylic monomer such as vinyl acetate in the presence of a surfactant, and an initiator to initiate emulsion polymerization of said first monomer charge and
(b) adding a polymer having a molecular weight ranging from 500 to 20,000 to the emulsion.

4.1 Such a composition is, however, known from D1, which according to the decision under appeal and the submissions of the parties was to be regarded as the

closest prior art.

4.2 D1 describes a pressure-sensitive adhesive composition obtained by emulsion polymerization of alkyl acrylates such as ethyl acrylate as main component and further vinylic monomers such as vinylacetate to form an acrylic polymer mixture. After polymerization a low molecular weight, water soluble or water dispersible (meth)acrylic acid ester-based polymer resin having an average molecular weight of 1 000 to 50 000, for example 4 500, is added to the emulsion polymer (claim 1, comparative example 1 in connection with example 1).

By the use of the low molecular weight support resin the peel strength is improved on rough surfaces whilst the cohesive strength is not unduly reduced (page 4, first full paragraph, example 1, page 14, second paragraph).

4.3 Compared to this state of the art, the technical problem may be seen in providing a pressure sensitive adhesive composition having substantially Newtonian-like flow characteristics i.e. emulsion viscosities, which are stable under high shear conditions such as those encountered in roll coating operations (page 2, lines 31 to 32 and 54 to 56).

4.4 The solution proposed according to claim 1 of the first auxiliary request is to add a support resin to the polymerization mixture after initiation of the emulsion polymerization reaction but before the emulsion polymerization reaction is substantially complete.

4.4.1 As shown by the experimental report submitted on 10 November 1997, the addition of the support resin during the emulsion polymerization reaction results in pressure-sensitive adhesives, the viscosities of which vary little in response to the shear applied, i.e. show substantially Newtonian-like rheological properties and thus improved stability (pages 3 and 4, tables, samples 1 to 3). Further, the experimental report filed on 12 December 1996 shows a low percentage of coagulum and thus good stability when using the claimed stage of addition of the support polymer (page 6, table, samples 2 and 4). Due to these properties, the claimed adhesive compositions have excellent flow, coating and levelling characteristics especially on low energy surfaces and on high speed equipment (page 3, lines 2 to 4 of the patent in suit).

4.4.2 The argument of the respondent, that the problem cannot be solved over the whole scope of the claims because of the unspecified time point within the stage of addition and unspecified nature of the support resin, since the appellant has not shown this by its additional experimental data, is not convincing.

4.4.2.1 Although the respondent refers in this connection to the broad definition of the support resin in step (b) of claim 1, the crucial point of the claimed invention is not the chemical nature of the support resin, but rather the stage at which the support resin is added to the emulsion polymerization reaction. This has been shown, convincingly in the board's view, by the experimental report, received on 10 November 1997, according to which the addition of the support resin as claimed results in substantially Newtonian-like

rheological properties whether the support resin is added shortly after initiation of the polymerization or near the end of the reaction (page 1, first paragraph, page 3, table, "% coagulum" and page 4, table, samples 2 and 3). Conversely, the addition of a support resin after polymerization, i.e. in accordance with the teaching of D1, has been shown to result in an unstable blend which coagulated completely (experimental report filed on 10 November 1997, page 4, sample 5). Thus, the precise point in time of addition is of minor importance provided that such addition is made at the relevant stage, i.e. during emulsion polymerization. Furthermore, the experimental report of 12 December 1996 illustrates the preparation of stable emulsions with two chemically completely different support resins (styrene acrylic resin and polyurethane; page 2 first paragraph, page 6, samples 2 and 4).

4.4.2.2 From the above, it follows that the appellant has shown that the addition of different support resins at different time points within the relevant stage still provides stable polymer emulsions having Newtonian-like flow properties.

4.4.2.3 Quite apart from the above reasons, the respondent has filed no counter-evidence of its own to show that a relevant effect is not achieved over the whole ambit of the claim. The onus of proof in this respect lies, however, with the opponent (T 219/83, OJ EPO 1986, 211). This the respondent has failed to discharge.

4.4.2.4 In view of the above reasons, it is credible to the board that the claimed measure provides an effective solution of the technical problem and this over the

whole scope of the claims.

5. *Novelty (first auxiliary request)*

Novelty of the subject matter of the claims of this request has not been contested, and the board sees no reason to take a different view. Consequently, the subject matter is held to be novel.

6. *Inventive step (first auxiliary request)*

It is necessary to consider, whether the skilled person, starting from a pressure-sensitive adhesive according to D1 and faced with the problem of providing Newtonian-like properties to them, would have expected this result to be achieved, by adding the support resin to the polymerization mixture after initiation of the emulsion polymerization reaction but before the emulsion polymerization reaction is substantially complete.

6.1 There is no disclosure in D1 of adding the low molecular weight polymer of an ester of (meth)acrylic acid at any other stage than after the emulsion polymerization process is complete, whereby the latter dissolves in the acrylic emulsion polymer of the adhesive and has a plastifying effect on it (page 4, second complete paragraph). This is not surprising, since the aim of D1 is not to modify the viscosity of the adhesive compositions so as to provide Newtonian-like flow properties, but rather to obtain an improved peel strength on rough surfaces whilst the cohesive strength is not unduly reduced (page 4, second paragraph). Thus, there is no hint in D1 to the essential step characterizing the solution of the

technical problem, of adding the support resin at a quite different time point, namely during the emulsion polymerization reaction.

In summary, D1 is not related to the problem posed and consequently teaches a completely different approach. It does not provide any hint to modify the teaching of D1 in the direction of the solution of the technical problem.

6.2 Whilst the obviousness argument of the decision under appeal was based on the concept of the support resin being an "inert" material, which would not take part in the reaction (page 10, paragraph in the middle), this was unsupported by any reference to a prior art document and is to this extent speculative. It has in any case turned out to be irrelevant, since it has been demonstrated, to the satisfaction of the board, that the relevant effect does in fact occur, even when using a support resin species such as a polyurethane, which had been identified in the decision under appeal as being "inert" (sections 4.4.1 and 4.4.2).

Consequently, the argument that the claimed different addition is a "conventional measure" (pages 10 and 11 bridging paragraph) cannot be supported by the board.

For these reasons, the decision under appeal must be set aside.

6.3 The argument of the respondent put forward at the oral proceedings, that the relevant improved flow characteristics, as shown for instance in the experimental report of 10 November 1997, could have been expected, as the support resin would function as

a protective colloid, was based on the amounts of coagulum reported for samples 1 to 4 (table on page 3, Annex II). It is not convincing for the following reasons.

6.3.1 Although samples 1 to 4 according to that report show that the percentage of coagulum increases the later the support resin is added to the emulsion, such results do not belong to the state of the art but were obtained by using the disclosure in the patent in suit. Consequently, the phenomenon in question has not been shown to belong to the state of the art.

6.3.2 Nor has the respondent provided convincing evidence that a support resin will indeed function as "protective colloid" when added during an emulsion polymerization reaction. On the contrary, a closer examination of the results of the coagulum formed, in the experiments of the further test report filed on 12 December 1996, which use the same polyurethane support resin as those relied upon by the respondent (Spensol L-54), reveals an opposite trend, since the amount of coagulum formed in sample 2 (addition after commencement of the emulsion polymerization) is ten times less than that of sample 1 (addition prior to emulsion polymerization).

6.3.3 Consequently, the respondent's argument is not supported by the totality of the experimental data available in the proceedings, and even if it had been, there is no reason for supposing that the skilled person would have expected such a technical effect from the addition as claimed in the absence of any relevant prior art teaching.

6.4 Finally, the respondent's arguments having regard to the experimental report of 12 December 1996, that the adhesive properties of sample 1 were better than those of sample 2 are irrelevant for the following reasons:

6.4.1 Sample 1 illustrating the addition of the support resin in front (before emulsion polymerization) is not a prior art sample in comparison with which a technical effect has to be shown. Furthermore, the main aim of the claimed invention is not to improve any specific adhesive properties, but to provide Newtonian-like flow properties which have been shown to occur (sections 4.4.1 and 4.4.2, above).

6.4.2 Consequently, it is immaterial whether there exists another variant which belongs neither to the claimed subject matter nor to the prior art, but which has interesting properties. On the contrary, the provision of such information is in effect a gift from the appellant to the public.

6.4.3 In summary, the comments of the respondent in this connection have no bearing on the issue of inventive step in relation to the claimed subject-matter.

6.5 Hence, the solution of the technical problem does not arise in an obvious way from the state of the art. Consequently, the subject-matter of claim 1, and, by the same token, that of dependent claims 2 to 6, involves an inventive step in the sense of Article 56 EPC.

6.6 It follows that the first auxiliary request is allowable.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance with the order to maintain the patent as amended in the following version:

Claims: Claim 1 of the first auxiliary request filed at oral proceedings and labelled "auxiliary request 6";
Claims 2 to 6 of the patent as granted; and

Description: pages 2 to 9 of the patent as granted.

The Registrar: The Chairman:

C. Eickhoff R. Teschemacher