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**Datasheet for the decision
of 9 September 2008**

Case Number: T 1091/06 - 3.3.03

Application Number: 96101503.9

Publication Number: 0727449

IPC: C08F 279/02

Language of the proceedings: EN

Title of invention:

Process for the preparation of vinylaromatic copolymers
reinforced with rubber

Patentee:

Polimeri Europa S.p.A.

Opponent:

Ineos ABS (Jersey) Limited

Headword:

-

Relevant legal provisions:

EPC Art. 113(1), 113(2), 123(2)
EPC R. 80

Relevant legal provisions (EPC 1973):

EPC R. 55(c)

Keyword:

"Substantial procedural violation - no"
"Admissibility of requests previously withdrawn - yes"
"Amendments - added subject-matter - yes - (main and first
auxiliary requests)"

Decisions cited:

G 0009/91, T 0201/83, T 0089/85, T 0123/85, T 0260/85,
T 0331/87, T 0296/96, T 0168/99, T 0386/04

Catchword:

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Case Number: T 1091/06 - 3.3.03

D E C I S I O N
of the Technical Board of Appeal 3.3.03
of 9 September 2008

Appellant: Polimeri Europa S.p.A.
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office dated 27 April 2006 and
posted 24 May 2006 revoking European patent
No. 0727449 pursuant to Article 102(1) EPC.

Composition of the Board:

Chairman: R. Young
Members: M. C. Gordon
E. Dufrasne

Summary of Facts and Submissions

- I. Mention of the grant of European Patent No. 0 727 449 in the name of Enichem S.p.A., later Polimeri Europa S.p.A. in respect of European patent application No. 96101503.9, filed on 2 February 1996, claiming a priority date of 16 February 1995 (IT MI950280) and published on 21 August 1996 was announced on 25 July 2001 (Bulletin 2001/30) on the basis of 7 claims. Claim 1 read as follows:

"Process for the preparation of vinylaromatic copolymers reinforced with rubber which comprises:
a) dissolving a dienic rubber (i) and/or a linear block elastomer based on a vinylaromatic monomer and a 1,3 conjugated diene (ii) wherein the diene content is greater than 70% b.w., in a mixture comprising at least one vinylaromatic monomer and other copolymerizable monomers and a pair of solvents consisting of a polar solvent and a nonpolar solvents [*sic*], wherein the polar solvent is an organic compound which is liquid at the polymerization temperature consisting of carbon and hydrogen and containing one or more heteroatoms in the molecule;
b) polymerizing the solution thus obtained, possibly in the presence of an initiator."

Claims 2-6 were directed to preferred embodiments of the process of claim 1 whereby claim 4 read as follows:

"Process according to claim 1, wherein the polar solvent is of the saturated aliphatic or aromatic type and is characterized, when its molecule is not

symmetrical, by a dipole moment value which is higher than $3 \cdot 10^{-30} \text{C}^* \text{m}.$ "

Claim 7 was a product-by-process claim and read as follows:

"Vinylaromatic copolymers reinforced with rubber obtained with a process which comprises:

- a) dissolving a diene rubber (i) and/or a linear block elastomer based on vinylaromatic monomer and a 1,3 conjugated diene (ii) wherein the diene content is greater than 70% b.w., in a mixture comprising at least one vinylaromatic monomer and other copolymerizable monomers and a pair of solvents consisting of a polar solvent and a nonpolar solvent, wherein the polar solvent is an organic compound which is liquid at the polymerization temperature consisting of carbon and hydrogen and containing one or more heteroatoms in the molecule;
- b) polymerizing the solution thus obtained, possibly in the presence of an initiator."

- II. An opposition against the patent was filed on 7 December 2001 by Bayer AG. The grounds of opposition pursuant to Art. 100(a) EPC (lack of novelty, lack of inventive step) were invoked.
- III. During the course of the opposition proceedings the opposition was transferred to Lanxess Deutschland GmbH (Communication of amended entries issued by the EPO dated 25 July 2005).
- IV. With a letter dated 20 April 2006 the patent proprietor submitted two sets of claims forming a main and an auxiliary request. The main request, which was stated

to be identical to a set of claims previously filed with a letter of 3 October 2002 consisted of 6 claims. Claim 1 of the main request read as follows, the additions and deletions compared to claim 1 as granted being indicated in **bold** and ~~striketrough~~ respectively:

"Process for the preparation of vinylaromatic copolymers reinforced with rubber which comprises:
a) dissolving a dienic rubber (i) and/or a linear block elastomer based on a vinylaromatic monomer and a 1,3 conjugated diene (ii) wherein the diene content is greater than 70% ~~b.w.~~, **by weight** in a mixture comprising at least one vinylaromatic monomer and other copolymerizsable monomers and a pair of solvents consisting of a polar solvent and a nonpolar solvents wherein the polar solvent is an organic compound which is liquid at the polymerization temperature ~~consisting of carbon and hydrogen and containing one or more heteroatoms in the molecule~~ **and is selected from the group consisting of acetone, cyclohexanone, methylethylketone, diethylketone, acetonitrile, propionitrile, butyrronitrile [sic], ethyl acetate, butyl acetate, tetrahydrofurane [sic] and dioxane;**
b) **continuously** polymerizsing the solution thus obtained, possibly in the presence of an initiator, **in at least two reactors of plug-flow type arranged in series.**"

As a result of the specification of the solvent in claim 1, claim 4 as granted had been deleted (see section I above). Independent product-by-process claim 6 of this request, corresponding to claim 7 of the patent as granted, had been amended analogously to claim 1 in respect of the definition of the polar solvent and of the process features.

Claims 2, 3, 4 and 5 were dependent process claims corresponding to claims 2, 3, 5 and 6 respectively of the patent as granted.

The auxiliary request differed from the main request in that in claims 1 and 6 the wording "which comprises" had been replaced by "which consists of".

V. By a decision dated 27 April 2006 and issued in writing on 24 May 2006 the opposition division revoked the patent. The decision was based on two sets of claims, designated "Annex I" and "Annex II" both submitted during the oral proceedings before the opposition division.

(a) According to the minutes of the oral proceedings, initially the sets of claims submitted with the aforementioned letter of 20 April 2006 were considered (see section IV above).

Objections pursuant to Art. 123(2) EPC were raised by the opponent and by the opposition division in respect of both of these requests.

The objections of the opponent were directed to the feature, in part b) of the claim "in at least two reactors of plug-flow type", which feature had been introduced by amendment during the opposition procedure (see **bold** text in section IV above).

The objections of the opposition division, on the other hand, were directed to an expression which had been present in claim 1 as granted, namely "wherein the diene content is greater than 70%"

(see sections I and IV above).

The minutes of the oral proceedings record that the opposition division held that this feature of granted claim 1 referred both to the dienic rubber (i) and the block elastomer (ii); the opposition division considered that in the application as filed, however, this feature was disclosed only for the block copolymer.

The minutes further record that:

"After deliberation of the opposition division, the Chairman informed the parties that both requests did not meet the requirements of article 123(2) EPC because of both points discussed."

Following a break in the oral proceedings the patent proprietor filed a new main request and a new auxiliary request i.e. the aforementioned "Annex I" and "Annex II" respectively.

In response to a question by the Chairman of the opposition division, the patent proprietor confirmed that these requests replaced the former requests.

The newly filed requests each consisted of 6 claims.

Claim 1 of the main request - "Annex I" - read as follows, the additions and deletions compared to claim 1 as granted being indicated in **bold** and

~~strikethrough~~ respectively:

"Process for the preparation of vinylaromatic copolymers reinforced with rubber which comprises:
a) dissolving a ~~diene~~ **polybutadiene** rubber (i) and/or a linear block ~~elastomer~~ **copolymer** based on a vinylaromatic monomer and a 1,3 conjugated diene (ii) wherein ~~the~~ **said block copolymer has a** diene content ~~is~~ greater than 70% ~~b.w.~~, **by weight**, in a mixture comprising at least one vinylaromatic monomer and other copolymerizable monomers and a pair of solvents consisting of a polar solvent and a nonpolar solvents, wherein the polar solvent is an organic compound which is liquid at the polymerization temperature ~~consisting of carbon and hydrogen and containing one or more heteroatoms in the molecule and is selected from the group consisting of acetone, cyclohexanone, methylethylketone, diethylketone, acetonitrile, propionitrile, butyrronitrile [sic], ethyl acetate, butyl acetate, tetrahydrofurane [sic] and dioxane;~~
b) polymerizing the solution thus obtained, possibly in the presence of an initiator, **in a conventional polymerization plant for HIPS or ABS in mass-solution and in continuous, consisting of two or more reactors of the plug-flow type, arranged in series, and one or more devolatalizers.**".

Product-by-process claim 6 of this request, corresponding to claim 7 of the patent as granted, was amended analogously in respect of the definition of the polar solvent and of the process features.

Claims 2, 3, 4 and 5 were identical with claims 2, 3, 4, and 5 respectively of the main request filed with the letter of 20 April 2006 (See section IV above).

The auxiliary request - designated "Annex II" - differed from the main request in that in the first phrase of claims 1 and 6 the term "comprises" had been replaced by the wording "consists of".

- (b) According to the decision claim 1 of the main request did not meet the requirements of Art. 123(2) EPC since it contained a combination of features which was not disclosed in the application as filed and/or the patent as granted. In particular the decision identified four selections that had been made compared to the original disclosure in order to arrive at the newly claimed combination:
- (i) The amended claim specified polybutadiene whereas original claim 1 had been directed to a dienic rubber. This amendment constituted a selection from the examples of dienic rubbers disclosed on pages 10 and 11 of the application as filed (reference being made to the original typescript).
 - (ii) A further selection had been made with respect to the definition of the monomer mixture in which the rubbers were to be dissolved i.e. the feature "at least one vinylaromatic monomer and other copolymerisable monomers". The application

as filed had however disclosed that the vinylaromatic monomers could be used alone, mixed with each other or with other copolymerisable monomers.

- (iii) A further selection had been made in the specification of the polar solvents. The application as filed contained two lists relating to the solvents. That on page 9 specified "for example a ketone, an ester, an ether or a nitrile" and that on page 17 defined specific compounds e.g. acetone.
- (iv) A further selection had been made when characterising the polymerisation reactor. The application as filed specified on page 10 that the polymerisation could be carried out in a conventional polymerisation plant for HIPS or ABS in mass-solution and in continuous, consisting of two or more reactors of the plug-flow type, arranged in series as described in certain named US-patents. On page 18 of the original application, however, it was disclosed that the polymerisation was generally carried out in two or more vertical, tubular, stirred plug-flow reactors arranged in series.

In view of these four selections to arrive at the subject matter of claim 1, there appeared to be no basis in the application as originally filed for the claimed combination of features.

- (c) It was also held that claim 1 of the main request contravened Art. 123(3) EPC. The details of this

objection are however not of relevance for the present decision.

(d) The objections raised in respect of the main request were held to apply also to the auxiliary request.

(e) Accordingly the patent was revoked.

VI. A notice of appeal against the decision was filed by the patent proprietor on 13 July 2006, the prescribed fee being paid on the same day.

VII. The statement of grounds of appeal was filed by the appellant on 7 September 2006 accompanied by a main request and sets of claims forming a first, second and third auxiliary request. These sets of claims were designated respectively "Enclosure A", "Enclosure B", and "Enclosure C".

It was requested as the main request that the decision be set aside and that the case be remitted to the opposition division for further treatment.

As the first, second and third auxiliary requests it was requested that the patent be maintained in amended form on the basis, respectively, of the aforementioned sets of claims designated "Enclosure A", "Enclosure B" and "Enclosure C".

(a) With respect to the main request it was submitted that the opposition division had committed a substantial procedural violation. Art. 123 EPC had not been a point of issue during the opposition

proceedings. This matter had not been raised in the notice of opposition, subsequent letters of the opponent or in the summons to oral proceedings issued by the Opposition Division. The summons had stated only that novelty, inventive step and Art. 84 EPC were to be discussed.

It was only during the oral proceedings and for the first time that objections pursuant to Art. 123(2) EPC were raised (see section V.(a) above). The objection raised by the opposition division related furthermore to a feature which already appeared in claim 1 as granted (see section V.(a) above). Following this discussion and a break in the oral proceedings the patent proprietor had filed amended requests (Annexes I and II) on which the decision of the opposition division had been taken.

With respect to Art. 113(1) EPC it was submitted that Art 123(2) EPC had never been a point at issue in the opposition proceedings. The expression objected to had appeared in granted claim 1 and represented a point for discussion, i.e. introduction of a new ground of opposition, which would have needed to be mentioned in the summons for oral proceedings. It was submitted that there had thus been a violation of R 71a EPC 1973.

The patent proprietor had therefore had no, or only insufficient, opportunity to present the necessary comments on this issue and the opposition division had taken its decision on this

matter already during the oral proceedings, as was apparent from item 2 of the minutes (see section V.(a) above). This was submitted to be a violation of Art. 113(1) EPC.

It was further submitted that:

"As far as the impugned decision points out that this legal requirement has been fulfilled (page 2, item 15 and page 3, item 1.) this refers to the set of claims upon which the decision is based, i.e. to its annexes I and II, but not to the "both requests" which, according to the information given by the Chairman, "did not meet the requirements... because of both points discussed.""

- (b) With regard to the substance of the objections pursuant to Art 123(2) EPC with respect to the claims of annexes I and II it was submitted that no new combination had been generated.

In particular *inter alia* the specification of the monomer was based on page 16 lines 15 and 16 and the examples of the application as filed. Similarly with respect to the polar solvents, the entire list of page 17 of the application as originally filed had been incorporated. Thus there had been no selection in this respect.

The definition of the polymerisation reactor was supported by the disclosure on page 10, lines 1-5 of the application. The patents cited at lines 6-7 of page 10 were only examples of conventional

polymerisation plants but were not limiting. Similarly the information at page 18, lines 2-4 of the application referred to what was "generally" carried out. Thus the disclosure of the reactor could not be construed as a list of alternatives from which a selection would have to be made.

- (c) The first auxiliary request submitted with the statement of grounds of appeal ("Enclosure A") consisted of 6 claims. It was submitted that this set of claims was identical to the set of claims filed on 3 October 2002, reported in section IV above. Further some editorial changes had been made to claim 6 (corresponding to claim 7 as granted) and claim 5 (corresponding to claim 6 as granted).

With respect to this request it was submitted that the amendments made met the requirements of Art. 123(2) EPC. The list of polar solvents in part a) of the claim was supported by page 17, lines 11ff of the application as originally filed and comprised all 11 solvents disclosed. The insertion of the terms "continuously" and "in at least two reactors of plug-flow type arranged in series" in part b) of claims 1 and 6 (see section IV above) was supported by page 10, lines 1 to 5 of the application as originally filed. Neither of these amendments to part a) or part b) of the claim represented a selection. The specification of the monomers, in particular the feature "and other copolymerisable monomers" was supported by page 16 lines 7 and 16 of the application as originally filed.

With respect to Art. 123(3) EPC it was submitted that the amendments made resulted in a limitation and did not extend the scope of protection.

- (d) Details of the second and third auxiliary requests ("Enclosure B" and "Enclosure C" respectively) and submissions made with respect thereto are not of relevance to the present decision as these were withdrawn in the further course of the procedure (see respectively sections XI and XII.(g) below).

VIII. The opponent - now the respondent - replied in a letter dated 13 March 2007.

- (a) In respect of the submissions of the appellant regarding a substantial procedural violation it was submitted that the absence from the summons to oral proceedings of a reference to matters which later turned out to be relevant for the decision did not *per se* constitute a contravention of the provisions of Art. 113(1) EPC.

It was disputed that the patent proprietor had not sufficiently been accorded the right to be heard on the occasion of the oral proceedings.

On the contrary, the patent proprietor had been permitted to submit amended claims in order to address the objections pursuant to Art. 123(2) EPC.

Further during the oral proceedings the patent proprietor had voluntarily withdrawn the requests (main and auxiliary) submitted with the letter of

20 April 2006 (see sections IV and V.(a) above).

It was also the case that during the oral proceedings the patent proprietor had neither requested that the submissions of the opponent be rejected as late filed, nor that the procedure be continued in writing.

Nor had the patent proprietor requested more time to draft further claims.

The submissions of the patent proprietor in this respect could not be followed.

Following the discussion of the requests submitted with the letter of 20 April 2006, the patent proprietor had withdrawn these.

This alone led to the conclusion that the patent proprietor had been sufficiently accorded the right to be heard, otherwise there would have been no reason to come to the conclusion to withdraw said requests.

- (b) Submissions were made with respect to the allowability of the claims of Annexes I and II pursuant to Art. 123(2) EPC.
- (c) With respect to the first auxiliary request (set of claims designated "Enclosure A") it was observed that this was identical with the claims submitted on 3 October 2002 (see section IV above).

Since the patent proprietor had not pursued this

request in the oral proceedings before the opposition division, the patent proprietor did not have the possibility to base the appeal on this request.

Had the opposition division allowed the main request of the patent proprietor, there would have been no possibility to pursue other claims on appeal.

Accordingly the appellant should not now be permitted to reintroduce the - previously withdrawn - former main request at the appeal stage.

- (d) In any case claim 1 of the first auxiliary request ("Enclosure A") did not meet the requirements of Art. 123(2) EPC.

The reasons given for this were *inter alia* due to the presence of the feature "at least two reactors of plug-flow type arranged in series" in part b) of claim 1.

This subject matter was not directly and unambiguously derivable from the indicated passage on page 10 of the application as filed as this passage disclosed this feature only in association with a "conventional polymerization plant for HIPS or ABS in mass-solution and in continuous, consisting of two or more reactors of the plug-flow type, arranged in series, and one or more devolatizers as described in US patents [...] or in the published European patent application

400.479".

In particular the use of the term "consisting of" unambiguously linked the disclosure of "two or more reactors of the plug-flow type, arranged in series" to the use of the "devolatizers" as disclosed in the cited patents.

It was also submitted that the combination of these features with other features of claim 1, in particular the definition of the monomers, the solvent and the feature "continuously" resulted in a selection of features which was novel compared to the original disclosure and hence extended beyond the content thereof.

- (e) Objections were also raised with respect to Art. 84 EPC and 123(3) EPC.
- (f) Submissions were also made with respect to the second and third auxiliary requests ("Enclosure B" and "Enclosure C").

IX. The Board issued on 23 May 2008 a summons to attend oral proceedings. In the accompanying communication it was stated that the matters pertaining to Art. 113(1), 123(2) and 123(3) EPC were to be discussed.

X. By a letter dated 7 July 2008 the respondent/opponent notified a transfer to the status of opponent to Ineos ABS (Jersey) Limited, supporting documentation being submitted. According to this documentation Lanxess Deutschland GmbH had transferred its entire business relating to ABS to Ineos ABS (Jersey) Limited, and as

part of its obligations according to the agreement all patent oppositions related to the ABS business were also transferred.

XI. With a letter dated 8 August 2008 the appellant amended its requests as follows:

- The set of claims designated "Enclosure A" filed with the statement of grounds of appeal (see section VII.(c) above) became the main request.
- The set of claims designated "Enclosure C" filed with the statement of grounds of appeal (see section VII.(d) above) became the first auxiliary request.

As a consequence, the set of claims designated "Enclosure B" was not further pursued.

As second, third and fourth auxiliary requests maintenance of the patent was requested on the basis of sets of claims designated "Enclosure D", "Enclosure E" and "Enclosure F" submitted together with said letter, each "Enclosure" having 6 claims.

Claim 1 of "Enclosure D" (the second auxiliary request) differed from claim 1 of the main request ("Enclosure A" - see sections IV and VII.(c) above) in that:

- in part a) the reference "(ii)" had been moved from after "diene" to after "70% by weight";

- in part b) the terms "vertical, tubular, stirred" had been inserted between the terms "at least two" and "reactors".

Accordingly claim 1 of "Enclosure D" read as follows, the additions and deletions compared to claim 1 as granted being indicated by **bold** and ~~striketrough~~ respectively:

"Process for the preparation of vinylaromatic copolymers reinforced with rubber which comprises:
a) dissolving a dienic rubber (i) and/or a linear block elastomer based on a vinylaromatic monomer and a 1,3 conjugated diene ~~(ii)~~ wherein the diene content is greater than 70% ~~b.w.~~, **by weight (ii)** in a mixture comprising at least one vinylaromatic monomer and other copolymerizsable monomers and a pair of solvents consisting of a polar solvent and a nonpolar solvents wherein the polar solvent is an organic compound which is liquid at the polymerization temperature ~~consisting of carbon and hydrogen and containing one or more heteroatoms in the molecule~~ **and is selected from the group consisting of acetone, cyclohexanone, methylethylketone, diethylketone, acetonitrile, propionitrile, butyrronitrile [sic], ethyl acetate, butyl acetate, tetrahydrofurane [sic] and dioxane;**
b) **continuously** polymerizs the solution thus obtained, possibly in the presence of an initiator, **in at least two vertical, tubular, stirred reactors of plug-flow type arranged in series."**

Corresponding changes had been made to the process features of product-by process claim 6 of this request.

- (a) With respect to Art. 123(2) and (3) EPC for the main and first auxiliary requests ("Enclosure A" and "Enclosure C" respectively), reference was made to the submissions in the statement of grounds of appeal (see section VII.(b) and (c) above).
- (b) With respect to the second auxiliary request ("Enclosure D") it was submitted that the basis for the amendment "...at least two vertical, tubular, stirred reactors of plug-flow type" was provided by page 18, lines 2-4 of the application as filed. This characterisation did not constitute a selection since the cited passage of page 18 clearly expressed that this arrangement was generally used for the process of the invention and did not constitute a specific, i.e. preferred, embodiment.
- (c) Submissions were also made with respect to the third and fourth auxiliary requests ("Enclosure E" and "Enclosure F" respectively).

XII. Oral proceedings were held before the Board on 9 September 2008.

- (a) With respect to the alleged procedural violation both parties relied on their respective written submissions (see sections VII.(a) and VIII.(a) above).

Main request - "Enclosure A"

- (b) The respondent disputed that the main request ("Enclosure A") was formally admissible since this set of claims had previously been submitted and then withdrawn during proceedings before the opposition division (see sections IV, V.(a), VII.(c) and VIII.(c) above).

The appellant submitted that according to the established Case Law withdrawal of a request during opposition proceedings did not mean that it could not be reintroduced later in appeal proceedings. In support of this argument reference was made to T 386/04 (9 January 2007, not published in the OJ EPO), T 168/99 (12 December 2000, not published in the OJ EPO) and to the publication "Case Law of the Boards of Appeal of the European Patent Office", 5th Edition, 2006, section VI.J.3.2.2.(b).(i).

The respondent submitted that the facts of the case in suit differed from those considered in the cited decisions precisely because the withdrawal had occurred during oral proceedings before the opposition division.

- (c) With respect to Art. 123(2) EPC the Board observed that a number of objections had been raised with respect to features which had been present in the claims of the patent as granted, and the meaning of which had not been modified by amendments made during the opposition procedure.

Such matters fell under Art. 100(c) EPC which however had not been invoked as a ground of opposition and had not been introduced into the proceedings by either the opposition division or the Board. Accordingly Art. 100(c) EPC was not part of the current appeal procedure.

Any objections with respect to added subject matter were accordingly to be restricted to amendments made during the opposition procedure, i.e. in this case amendments with respect to the granted claims.

(d) With respect to Art. 123(2) EPC:

(i) The respondent referred to part b) of claim 1 (see section VII.(c) above). The passage at page 10, lines 1-5 of the application as filed referred to conventional apparatus and devolatizers as disclosed in specified patents which needed to be consulted to understand the intended scope of the term.

It could not be derived from this passage that polymerisation **in general** was carried out in such equipment. Thus the term "plug-flow reactor" had been extracted from the description of the application as filed in a specific context, i.e. "reactors of plug-flow **type**" (emphasis of the Board) which disclosure was different from the reference to "plug-flow reactors" on page 18 of the application as filed. The claims - due to the extending effect of the term "type" thus

encompassed also non-conventional apparatus.

Further one feature, namely the devolatizer had been omitted.

Accordingly the scope of this part of claim was broader than that of the passage of the application as filed relied upon.

Although the features added compared to claim 1 as granted, namely:

- specification of the solvents;
- the fact that the process was continuous;
- details of the apparatus;
- details of the reactor type

were disclosed individually in the application as filed, they were not disclosed in the combination now claimed, nor was this combination of features derivable from the examples.

- (ii) The appellant submitted that it was apparent from page 18 lines 2-4 of the application as originally filed that plug-flow reactors were the general type to be used.

This was confirmed by the examples which employed plug-flow reactors. Further paragraph [0017] of the patent (corresponding to page 7, line 18-page 8, line 10 of the application as originally

filed) showed that plug-flow reactors were known in the state of the art. Certain features disclosed on page 18 of the application as filed, e.g. the features "vertical" and "tubular" had been omitted as these requirements were implicit in the term "plug-flow" as was the feature that the process was continuous.

It was submitted that there was no disclosure of any other kind of reactor in the application as filed.

It was further submitted that the reactor was in any case not central to the invention.

On the contrary it was emphasised that it was the solvent mixture employed which represented the core of the invention. With respect to the polar solvent, this feature had been in the claim from the outset. The list of solvents now specified corresponded to the entire list present at page 17, lines 12-14 of the application as filed. No selection had been made in this respect.

- (iii) The Board noted that the disclosures of the two passages of the description relied upon for the basis of "plug-flow" - i.e. page 10 and page 18 respectively, differed from each other both in terms of the precise wording, in terms of the technical features specified and in terms of the technical teachings to

which reference was made (i.e. cited patents).

- (e) Submissions were also made with respect to Art. 123(3) EPC.
- (f) Following deliberation the Board informed the parties that the main request was refused.

First auxiliary request

- (g) The appellant withdrew the set of claims according to "Enclosure C" as a consequence of which the set of claims according to "Enclosure D" - the former second auxiliary request - became the first auxiliary request. The text of claim 1 of this request is reported in section XI above.
- (h) The Board drew attention to the existence of a number of amendments of an editorial nature compared to the claims as granted which amendments did not appear to be occasioned by a ground of opposition.

Such amendments objected to included *inter alia* anglicising the spelling of "polymerizing", the replacement of the abbreviation "b.w.," by "by weight" (nb no trailing comma) and changing the position of "(ii)" in the independent claims (see section XI above).

The appellant indicated it was prepared to address these objections (R.80 EPC) but did not at this

stage proffer a so amended set of claims.

- (i) The appellant submitted that the features added to part b) of claim 1 of the first auxiliary request (see section XI above) were based on the disclosure at page 18, lines 2-4 of the application as filed. The feature "continuously" was derivable from the fact that plug-flow reactors were necessarily operated in a continuous manner, i.e. this feature was inherent.
- (j) The Board queried the reason for specifying this aspect. There was no reference to "continuous" or "continuously" on page 18. Further there was no disclosure of "type" on page 18.
- (k) The appellant submitted that the claims were based on the passage at page 18 of the application as filed and were limited to a specific reactor type which was disclosed. With regard to the disclosure of the feature "continuously" it was submitted that the passage bridging pages 17 and 18 was a single disclosure with respect to the reactor type given. The structure of the passage bridging pages 17 and 18 was clear. Firstly conventional techniques were disclosed then more detail was provided. It was generally permitted to divorce these process aspects from the further aspects, such as the concentration of the solvent. This was in any case not the only passage relating to the process - there was also a disclosure of the process on the aforementioned page 10.

- (l) The respondent maintained that the formulation of the claim was not derivable from page 18 - there was no disclosure of plug-flow **type** reactors. The passage bridging pages 17 and 18 was a single integral disclosure including *inter alia* the solvent quantity. This disclosure thus was of many features in - mandatory - combination. The operative claim however specified only some of these.
- (m) The Board observed that the passages referred to by the appellant disclosed the process in different terms, relying on different features. These passages were neither identical nor even consistent with each other. Regarding the passage bridging pages 17 and 18 it was also questioned whether the correct contextual unit was the entire paragraph, as submitted by the respondent or whether, as the appellant maintained, it was permissible to extract elements from this paragraph, neglecting others. In particular the question was whether the specification of the quantity of solvent (at page 17, line 24 of the application) was optional.
- (n) Following this discussion, the appellant indicated it was prepared to amend the request to address these objections.
- (o) Following an interruption of the oral proceedings the appellant, as announced (see section XII.(h) above), submitted an amended set of claims - designated "Enclosure D.1" - as a new first auxiliary request, replacing the set of claims

according to "Enclosure D".

It was submitted that the amendments undertaken were with a view to addressing the objections raised pursuant to R.80 EPC (see section XII.(h) above).

The amendments made were *inter alia* in claims 1 and 6:

- reinstating the "(ii)" after the term "1,3 conjugated diene";
- reinstating the abbreviation "b.w.," instead of "by weight";
- reinstating the americanised spelling of "polymerizing" in part b) of the respective claims, although it had been omitted to make a corresponding correction to "copolymerisable" in part a) of the respective claims;
- correction of two misspelt names of solvents in part a) of the respective claims.

No amendments going beyond those necessary to address the objections pursuant to R. 80 EPC had been made.

No further sets of claims amended to take account of the discussions pursuant to Art. 123(2) EPC, (reported in sections XII.(i)-XII.(m) above) in respect of the claims of "Enclosure D" were proposed.

Nor was any request made by the appellant to be permitted to submit any such further set of claims.

(p) The Board after deliberation informed the parties that the first auxiliary request was admitted to the procedure but refused.

(q) Thereupon the appellant stated that it was withdrawing the sets of claims designated "Enclosure E" and "Enclosure F".

The appellant submitted that the view of the Board was not known hence it was in a difficult position regarding formulation of new requests.

(r) The Chairman informed the parties that the consequence of the withdrawal of the requests based on the sets of claims designated E and F was that no further request remained on file.

The Chairman then announced the decision of the Board and the oral proceedings were closed.

XIII. The appellant (patent proprietor) requested that the decision under appeal be set aside and that the patent be maintained on the basis of the main request, filed as Enclosure A with letter dated 7 September 2006 or, in the alternative, of the auxiliary request, filed as Enclosure D1 during the oral proceedings. Enclosure C, filed with letter dated 7 September 2006, as well as Enclosures E and F, filed with letter dated 8 August 2008, all submitted as auxiliary requests, were withdrawn during the oral proceedings.

The respondent (opponent) requested that the appeal be dismissed.

Reasons for the Decision

1. The appeal is admissible.
2. *Article 113(1) EPC*
 - 2.1 During the oral proceedings before the opposition division the division raised - for the first time - an objection pursuant to Art. 123(2) EPC.
 - 2.1.1 The objection raised by the division related to a feature which had been present in the granted claim, namely "wherein the diene content is greater than 70%" (see sections I, IV and V.(a) above). The appellant alleged that the opposition division had committed a substantial procedural violation in raising this objection (see section VII.(a) above).
 - 2.1.2 An objection that the subject matter of a patent extends beyond the content of the application as filed contrary to the provisions of Art. 123(2) EPC is one of the grounds of opposition pursuant to Art. 100 EPC, namely Art. 100(c) EPC.

However the Board notes that:

- The ground of opposition pursuant to Art. 100(c) EPC had not been invoked in the Notice of Opposition (see section II above);

- The opponent did not seek to have this ground subsequently introduced into the opposition procedure;
- The opposition division did not introduce this ground of its own motion, as it would, subject to certain provisions, have been entitled to do (cf G 9/91 OJ EPO 1993, 408 point 16 of the reasons).

2.1.3 Accordingly the opposition ground pursuant to Art. 100(c) EPC did not at any point form part of the legal framework of the opposition proceedings - see R. 55(c) EPC 1973 with reference point 6 of the reasons of the aforementioned G 9/91.

Therefore the opposition division was not entitled to raise an objection on this ground, i.e. an objection relating to subject matter extending beyond the content of the application as originally filed in respect of features present in the claims of the patent as granted.

2.1.4 It is thus apparent that the opposition division was misled in considering that the feature "wherein the diene content is greater than 70%" was open to an objection pursuant to Art. 123(2) EPC.

2.1.5 This is however an error of judgement in respect of the applicable law but, but does not in the view of the Board constitute a procedural violation, let alone a substantial procedural violation which might have justified setting aside the decision under appeal.

2.2 A further aspect of relevance to these considerations is that Art. 113(1) EPC specifies that **decisions** may only be based on grounds or evidence on which the parties have had an opportunity to comment.

In the present case, the **decision** of the opposition division was however not based on an objection pursuant to Art. 123(2) EPC in respect of (a) feature(s) that had been present in the claims of the patent as granted since the sets of claims so affected were withdrawn.

2.2.1 In this connection it is appropriate to recall that following the discussion of the objection pursuant to Art. 123(2) EPC with respect to the feature "wherein the diene content is greater than 70%" and notification of the view of the opposition division, the patent proprietor withdrew the two requests so affected, i.e. the sets of claims, designated "Enclosure A" and "Enclosure B" submitted with the letter of 20 April 2006 (see section V.(a) above).

2.2.2 Accordingly the **decision** taken by the opposition division did not relate to the sets of claims in respect of which objections pursuant to Art. 123(2) EPC had been erroneously raised.

This was explicitly acknowledged by the appellant in its statement of grounds of appeal (see section VII.(a) above, passage quoted from the Statement of Grounds of Appeal).

2.2.3 The conclusion is that although the opposition division erroneously invoked Art. 123(2) EPC during the oral proceedings, i.e. raised this ground in respect of features not open to such an objection, the sets of claims so affected were withdrawn and replaced by other claims. No such objection was raised in respect of these latter claims.

2.2.4 The objections pursuant to Art. 123(2) and (3) EPC on which the decision of the opposition division was actually based related exclusively to amendments made during the opposition procedure, as reported in sections V.(b) and (c) above.

Such amendments had to be fully examined for their compliance with the provisions of the EPC - see Reasons 19 of the aforementioned Enlarged Board decision G 9/91, Art. 123(2) and (3) EPC being explicitly mentioned in this context.

2.2.5 It is thus apparent that the decision taken by the opposition division, against which the present appeal was filed, was based solely on grounds which the opposition division was not only permitted but was in fact obliged to consider.

2.3 Accordingly, for the reasons set out in the foregoing sections 2.1 and 2.2 the Board comes to the conclusion that the opposition division did not commit a substantial procedural violation in taking the decision under appeal, with the consequence that the decision under appeal meets the requirements of Art. 113(1) EPC.

2.4 Accordingly the request to set the decision aside must be refused.

3. *Main request - "Enclosure A"*

3.1 *Admissibility*

The respondent disputed that the set of claims

constituting the main request was admissible since this set of claims had previously been submitted then withdrawn during the opposition proceedings (see sections IV, V.(a), VII.(c), VIII.(c), and XII.(b) above).

This position is not supported by the case law according to which in the case where a patent has been revoked, the patent proprietor as the appellant, is entitled to seek maintenance of the patent in the form as granted, even if, during the opposition proceedings, this scope had been abandoned and more restricted claims pursued as the main or sole request (T 123/85 OJ EPO 1989, 336, reasons 3.1.1 and 3.1.2).

This applies even if a more restricted version had been filed at the commencement of the appeal proceedings as held in T 89/85 (7 December 1987, not published in the OJ EPO, reasons 2, penultimate paragraph). In this context reference may also be made to the decisions cited by the appellant at the oral proceedings (see section XII.(b) above).

Accordingly the (re)submission by the appellant/patent proprietor during the appeal procedure of a set of amended claims that had been submitted then abandoned during the opposition procedure is permitted. Consequently the main request ("Enclosure A") is formally admissible.

Art 123(2) EPC.

3.2 As noted in section VII.(c) above claim 1 of the main request differs from claim 1 of the patent as granted in two respects:

- the specification of the polar solvents in terms of a list of named compounds in part (a) of the claim;
- the addition of the features "continuously" and "in at least two reactors of plug-flow type arranged in series" in part (b) of the claim.

Since both of these amendments have been made with respect to the patent as granted, they must be examined for compliance with Art. 123(2) EPC (cf. Reasons 19 of G 9/91, referred to in section 2.2.4 above).

3.3 The first of these amendments, i.e. the list of solvents is disclosed at page 17, lines 12-14 of the application as originally filed. The entire list as given in the application has been incorporated into the claim, i.e. there is no selection or restriction with respect to the original disclosure.

Regarding the finding of the decision under appeal (see section V.(b).(iii)) that this feature arose from a combination of two passages of the application as filed the Board notes that the first list (at page 9, line 25) defines merely the general classes of compounds which can be employed (a ketone, an ester, an ether, a nitrile, etc) while the second list, i.e. the aforementioned disclosure at page 17 provides examples of specific compounds within these classes.

Therefore the two passages referred to provide a single,

convergent disclosure. The only "selection" that has been made with respect to this disclosure is a limitation - in its entirety - to the more restricted aspect thereof i.e. the explicitly disclosed compounds.

Accordingly this amendment does not give rise to any objection pursuant to Art. 123(2) EPC.

- 3.4 The second of these amendments, i.e. specifying that the reaction is carried out "continuously" and "in at least two reactors of plug-flow type arranged in series" (see section VII.(c) above) does not have a literal counterpart in the claims of the application as filed.

This is not disputed.

The question to be answered thus is whether this subject matter is, nevertheless, disclosed in and unambiguously derivable from the application as filed.

- 3.5 The description of the application as filed contains three separate passages of disclosure relating to processes and the apparatus to be employed therein (all references are to the originally filed typescript).
- 3.5.1 In the passage commencing at page 7, line 18 there is a discussion of a process disclosed in the published European patent application EP-A-412 801.

According to the reference to this disclosure, two prepolymers are separately formed in two parallel plug-flow type reactors until a specified degree of conversion is attained, yielding prepolymers of

specified particle size ranges. It is specified that the prepolymers are extracted "in continuous" from the respective reactors, mixed and the polymerisation is carried out in two or more reactors arranged in series until the desired conversion is attained.

Thus in the process as disclosed in the passage commencing at page 7, line 18 of the application two previously formed prepolymers are combined in two or more reactors of unspecified construction arranged in series.

In contrast thereto in the process of the operative claims (see section VII.(c) above) a polymer and a monomer or monomers are combined in a reactor of a defined type.

Accordingly this part of the description cannot provide a basis for the subject matter of operative claim 1.

- 3.5.2 Commencing at page 9, line 25 and continuing onto page 10 it is disclosed that "The polymerization can be carried out in a conventional polymerization plant for HIPS or ABS in mass-solution and in continuous, consisting of two or more reactors of the plug-flow type, arranged in series, and one or more devolatizers, as described in [3 US patents] or in the published European patent application 400.479".

This passage therefore discloses reactors of plug-flow type arranged in series. Further this passage restricts this disclosure - in a manner the extent and scope of which cannot be deduced from the text itself - by reference to certain patent documents, none of which is

the same as that referred to in the passage commencing at page 7, line 18 discussed in section 3.5.1 above.

This restriction - whatever it might in fact imply - is absent from the operative claim.

It is also the case that this passage specifies the mandatory presence of "one or more devolatizers". This feature is however absent from the operative claim.

Thus due to the absence of:

- the restriction imposed by the reference to the cited patents; and
- the feature "devolatizers"

the subject matter of feature (b) of operative claim 1 constitutes subject matter intermediate between that of the disclosure of claim 1 as originally filed and that of the subject matter disclosed in the passage of the description commencing at page 9, line 25, but is disclosed in neither of the indicated passages.

Accordingly the passage commencing at page 9, line 25 can also not provide the necessary basis pursuant to Art. 123(2) EPC for the subject matter of operative claim 1.

3.5.3 There is a third disclosure of the manner of carrying out the polymerisation commencing at page 17, line 19. This passage reads as follows:

"The polymerization is carried out using the conventional techniques in mass solution and in continuous. According to this polymerization technique,

the rubber is dissolved in the monomer, or monomers, in the presence of the pair of solvents in turn present in a quantity which can vary from 5 to 100% by weight, with respect to the total monomers plus rubber, and the resulting solution is subjected to polymerization with the possible use of an initiator. The polymerization is generally carried out in two or more vertical, tubular, stirred plug-flow reactors arranged in series."

This passage also cannot provide a basis for the subject matter of operative claim 1 since:

- Compared to the disclosure of this part of the application as filed, part (b) of operative claim 1 omits the features "vertical, tubular, stirred" with respect to the reactors;
- The wording in the claim "reactors of plug-flow **type**" (emphasis of the Board) extends, in a non-determinate manner the scope of this feature beyond the disclosure of "plug-flow reactors" (i.e. without the generalising modifier "type") in the cited passage; and
- The passage bridging pages 17 and 18 makes explicit reference to "the pair of solvents" and the quantities thereof. This last feature is absent from operative claim 1.

With respect to the feature "the pair of solvents", the Board notes that according to the passage commencing at page 9, line 13, in particular lines 21-23 the use of the combination of polar and non-polar solvents is central to the invention.

This was also emphasised by the appellant at the oral proceedings before the Board (see section XII.(d).(ii)

above).

The wording of the disclosure in the passage bridging pages 17-18 of the application is consistent with the above mentioned passage at page 9 of the application as filed, but restricts this further by the introduction the additional requirement relating to the quantities of the solvents.

This feature, i.e. the quantities of solvents in the mixture is presented as forming an integral feature of the process disclosed in the passage commencing at page 17 line 19. This is in particular apparent from the wording, in line 21 of page 17 "According to **this** polymerisation technique..." (emphasis of the Board).

Accordingly the subject matter of claim 1 of the main request is narrower than that of claim 1 as originally filed by addition of a restriction the terms of which are intermediate between those of the relevant passage of page 9 of the application as filed and those of the passage bridging pages 17 and 18 of the application as filed, but which is disclosed by neither of these.

- 3.5.4 It is therefore concluded that part b) of operative claim 1 is directed to a combination of features which are derived from two separate parts of the description, namely the passages commencing on pages 9 and 17 respectively (see the foregoing sections 3.5.2 and 3.5.3).

These passages differ in particular in terms of the disclosure of the apparatus in which the process is to be carried out and accordingly do not constitute a

single, convergent disclosure.

Further there is no statement or indication in the application as filed which permits it to be inferred that the disclosures of these two passages may be combined in any way.

This situation is further exacerbated by the following two factors:

(i) Intermediate disclosure:

As explained in sections 3.5.2 and 3.5.3 above, certain of the features specified in part b) of operative claim 1 have been isolated from the context of their disclosure in the application as originally filed, i.e. such features were originally disclosed in combination with other features, which other features have been omitted. The result is subject matter intermediate between that of the various disclosures relied upon, but which is disclosed in none of these.

(ii) Generalisations:

The omission of the reference to certain patent documents, and the introduction of the modifier "type" each result in an inadmissible generalisation, of undefined scope compared to the original disclosure.

3.6 The consequence of the foregoing considerations is that the Board concludes that the subject matter of claim 1 relates to a combination of features which is neither explicitly disclosed in nor directly and unambiguously

derivable from the application as filed.

- 3.7 Consideration of the submissions of the appellant does not lead to any other conclusion:
- 3.7.1 The submission that it was apparent from page 18 lines 2-4 of the application as filed that plug-flow reactors were to be used in general (section XII.(d).(ii) above) overlooks the generalising effect of the term "type" in operative claim 1. As explained in the above section 3.5.3, second bullet point the effect of this modifier is to extend the scope of the claim in a non-defined manner beyond the disclosure of the passage at page 18 lines 2-4 of "plug-flow reactors".
- 3.7.2 Regarding the submission that the features "vertical" and "tubular" had been omitted since these were implicit in the term "plug-flow" (section XII.(d).(ii) above) the Board observes, as explained in sections 3.5.3, second bullet point, and 3.5.4.(ii) above that the claim is not restricted to "plug-low reactors" but due to the presence of the modifying term "type" extends to encompass other reactors of unspecified configuration and construction.
- 3.7.3 Regarding the term "continuously", although this is disclosed in the two relevant parts of the description (the passage bridging pages 9 and 10 and the passage bridging pages 17 and 18), in each case this is in association with other features which are not in the present operative claim, as explained in sections 3.5.2 and 3.5.3 above (see also the conclusions in section 3.5.4, in particular section 3.5.4.(ii) above). In any case the appellant has advanced no evidence in support

of its submission (see section XII.(d).(ii)) that it was implicit in the term "plug-flow" reactors that the process was operated in a continuous manner.

3.7.4 Regarding the submission that there was no disclosure of any kind of reactor other than "plug-flow" in the application as filed (section XII.(d).(ii) above) the Board observes that this argument disregards the modifying effect of the term "type", which as explained in section 3.5.3, second bullet point above, extends the scope of the claim in an undefined manner.

3.8 Accordingly the subject matter of part (b) of operative claim 1 of the main request contains subject matter which extends beyond the content of the application as originally filed and therefore does not meet the requirements of Art. 123(2) EPC.

3.9 The main request must therefore be refused.

4. *First Auxiliary Request - "Enclosure D.1"*

Apart from a number of editorial amendments undertaken to address objections pursuant to R. 80 EPC, claim 1 of the first auxiliary request differs from claim 1 of the main request in that the wording "vertical, tubular, stirred" has been inserted in part (b) between the words "at least" and "two reactors" (see section XI above).

Accordingly, it will be recalled that the final part of this claim reads:

"b) continuously polymerizing the solution thus obtained, possibly in the presence of an initiator, in

at least two vertical, tubular, stirred reactors of plug-flow type arranged in series."

4.1 *Admissibility of the amended first auxiliary request "Enclosure D.1".*

The claims of this request differed from the set of claims according to "Enclosure D" only in minor editorial amendments (see sections XI, XII.(h) and XII.(o) above).

The amendments made did not themselves give rise to any substantive issues going beyond those already considered in respect of the set of claims according to "Enclosure D".

Further the amendments made did not have any influence on the substantive issues which had been discussed at the oral proceedings with respect to the set of claims according to "Enclosure D" (see sections XII.(i)-XII.(m) above).

Accordingly the Board saw no grounds for not admitting the set of claims according to "Enclosure D.1" to the proceedings.

4.2 *Art. 123(2) EPC.*

- 4.2.1 The amendments made to claim 1 of the first auxiliary request address certain defects of the main request - discussed in sections 3.5.3 and 3.7.2 above- with respect to the features "vertical, tubular, stirred". However other objections remain.

- 4.2.2 The objection arising from the use of the term "type" has not been addressed (see sections 3.5.3 second bullet point, 3.7.1 and 3.7.4 above).
- 4.2.3 Regarding the term "continuously", as explained in sections 3.5.3, 3.5.4 and 3.7.3 above, the term "continuous" is disclosed in a passage which defines certain other features, not all of which however are recited in the operative claim resulting in subject matter intermediate between that of the disclosures relied upon.
- 4.2.4 The submission of the appellant with respect to the absence of the specification of the quantity of the solvents from claim 1 of the first auxiliary request (see section XII.(1) above), namely that the passage bridging pages 17 and 18 was a single disclosure with respect to the reactor type given is consistent with the statement, made in respect of the main request, that the mixture of solvents was the core of the invention (section XII.(d).(ii)). The submission that it was not necessary to import **all** the other features of the passage bridging pages 17 and 18, e.g. the process steps and the quantity of solvents (see section XII.(1) above) is however inconsistent with and contradictory to this earlier statement and also inconsistent with the disclosure of the application as filed itself (see section 3.5.3 third bullet point above).
- 4.2.5 Even if this submission were to be followed, it would result in the problem that it would then be necessary to treat the passage bridging pages 17 and 18 as some kind of reservoir of features - all optional - which

could be combined in any manner desired, for which interpretation there is no basis in the application as filed (see also T 296/96, 12 January 2000, not published in the OJ EPO, Reasons section 3.1).

4.2.6 Further, as explained in section 3.5.3, third bullet point above, since the mixture of solvents is disclosed as being the core of the invention it would be inconsistent to disregard features relating specifically to this aspect, (in this case the quantity to be employed), in particular in the case as here where such features are presented as an integral part of a specific embodiment of the invention (by analogy with T 201/83, OJ EPO 1984, 481, T 260/85, OJ EPO 1989, 105, and T 331/87 OJ EPO 1991, 22).

4.3 Accordingly claim 1 of the first auxiliary request does not meet the requirements of Art. 123(2) EPC.

4.4 The first auxiliary request is therefore refused.

5. Since, following the discussion of the first auxiliary request and the announcement of the decision of the Board in respect thereof, the appellant withdrew all the remaining auxiliary requests (see section XII.(p) above) no further requests remained on file.

The inescapable consequence of the lack of any further requests from the appellant was that there was no further text on the basis of which the Board could examine and decide upon the case (Art. 113(2) EPC) so that the appeal had to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

E. Görgmaier

R. Young