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Datasheet for the decision of 12 March 2019

Case Number: T 0098/16 - 3.3.03

Application Number: 04728250.4

Publication Number: 1616549

IPC: A61J1/05

Language of the proceedings: EN

Title of invention:
DRUG SOLUTION FILLING PLASTIC AMPOULE AND PROCESS FOR PRODUCING THE SAME

Patent Proprietor:
OTSUKA PHARMACEUTICAL FACTORY, INC.

Opponents:
B. Braun Melsungen AG
Fresenius Kabi Deutschland GmbH

Relevant legal provisions:
EPC Art. 108, 107, 56
EPC R. 101(1), 126(2), 99(2)
RPBA Art. 12(1), 12(2), 12(4), 13(1), 13(3)

Keyword:

Admissibility of appeal of opponent 1 (no) - missing statement of grounds - party as of right
Auxiliary requests 2 and 3 submitted with the statement of grounds of appeal - admitted into the proceedings
Auxiliary requests 2 to 4 - inventive step (no) - obvious alternative
Auxiliary requests 5 to 8 - justification for late filing (no) - prima facie allowable (no) - not admitted into the proceedings

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Case Number: T 0098/16 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 12 March 2019

Appellant: (Patent Proprietor)	OTSUKA PHARMACEUTICAL FACTORY, INC. 115, Aza Kuguhara Tateiwa, Muya-cho Naruto-shi, Tokushima 772-8601 (JP)
Representative:	Hoffmann Eitle Patent- und Rechtsanwälte PartmbB Arabellastraße 30 81925 München (DE)
Appellant: (Opponent 1)	B. Braun Melsungen AG Carl-Braun-Str.1 34212 Melsungen (DE)
Appellant: (Opponent 2)	Fresenius Kabi Deutschland GmbH Else-Krömer-Strasse 1 61352 Bad Homburg (DE)
Representative:	Fresenius Kabi Deutschland GmbH Patent Department Borkenberg 14 61440 Oberursel (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 5 November 2015 concerning maintenance of the European Patent No. 1616549 in amended form.**

Composition of the Board:

Chairman	D. Semino
Members:	F. Rousseau
	W. Ungler

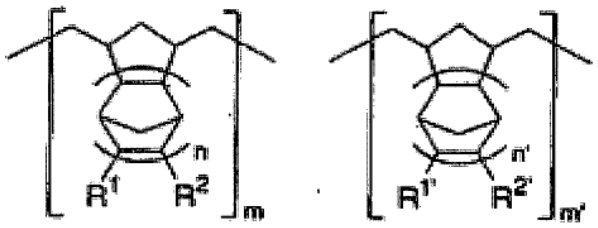
Summary of Facts and Submissions

I. The appeals are against the interlocutory decision of the opposition division posted on 5 November 2015 according to which European patent No. 1 616 549 as amended according to the documents of the fourth auxiliary request submitted on 21 October 2015 during the oral proceedings met the requirements of the EPC. The decision was also based on the claims as granted (main request), as well as three sets of amended claims submitted with letter of 21 August 2015 (first to third auxiliary requests).

II. Claim 1 of that third auxiliary request read as follows:

"1. A drug solution filling plastic ampoule comprising:
a flexible container body;
a fusion-bonded portion which seals a mouth of the container body; and
a holder tab connected to the fusion-bonded portion for wrenching off the fusion-bonded portion,
wherein
the container body, the fusion-bonded portion and the holder tab are integrally molded from a tubular parison including two or more layers,
the container body is molded by holding the parison between split mold pieces and, after a drug solution is filled in the container body, the mouth is sealed, and at least one of the layers of the parison is a functional layer having at least one characteristic property selected from the group consisting of a steam permeation preventing capability, a drug permeation preventing capability and a drug absorption/adsorption preventing capability,

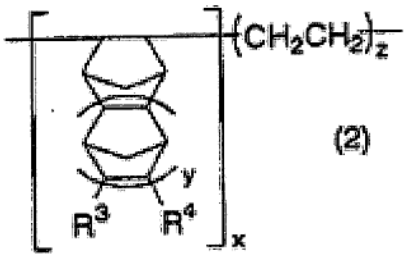
wherein the functional layer is the innermost layer and is composed of a polycycloolefin layer made of at least one polymer having a repeating unit represented by the following formula (1) and a repeating unit represented by the following formula (1'),



(1) (1')

wherein R^1, $R^{1'}$, R^2 and $R^{2'}$, which may be the same or different, are each hydrogen, a hydrocarbon residue, a halogen, an ester group, a nitrile group or a pyridyl group; R^1, $R^{1'}$, R^2 and $R^{2'}$ may be combined to form a ring; m and m' are each an integer not smaller than 1; and n and n' are each 0 or an integer not smaller than 1,

or a polymer having a repeating unit represented by the following general formula (2);



(2)

wherein R^3 and R^4, which may be the same or different, are each hydrogen, a hydrocarbon residue, a halogen, an ester group, a nitrile group or a pyridyl group; R^3 and R^4 may be combined to form a ring; x and z are each an integer not

smaller than 1; and y is 0 or an integer not smaller than 1."

Claim 1 of the fourth auxiliary request differed from claim 1 of the third auxiliary request only in that the indices n and n' in formulae (1) and (1') were defined to be each an integer not smaller than 1, i.e. the possibility of n or n' being 0 was deleted.

III. The decision was taken having regard to the following documentary evidence amongst others:

D1: EP 0 524 802 A1
D15: JP 2002-68963 A
D15a: machine translation in English of D15
D15b: human partial translation in English of D15
D29: T. Weller and D. Schulz, Cycloolefin-Copolymere (COC), KU Kunstoffe, 91 (2001) 10, pages 335-338
D32: V. Dragutan and R. Streck, Catalytic Polymerization of Cycloolefins, Studies in Surface Science and Catalysis, Elsevier, 2000, pages 715-773 and 1179-1181.

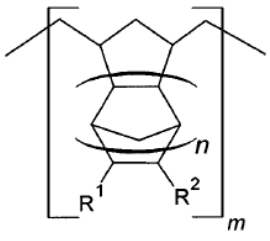
IV. The reasons for the contested decision which are of relevance for the appeal proceedings can be summarized as follows:

In claim 1 of the third auxiliary request, the definition of the polymer having a repeating unit represented by the formula (1) and a repeating unit represented by the formula (1') in which n and n' could be each 0 resulted in the definition of a noncyclic polyolefin which was in contradiction with the requirement in claim 1 that this polymer was a polycycloolefin. Thus, the third auxiliary request did not meet the requirements of Article 84 EPC. Due to the

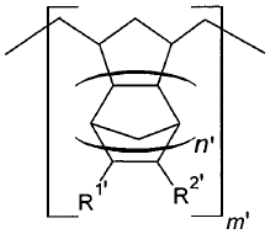
definition that n and n' were each an integer not smaller than 1 claim 1 of the fourth auxiliary request complied with Article 84 EPC. As to inventive step the closest prior art was represented by the ampoule disclosed in document D15. The ampoule according to claim 1 of the fourth auxiliary request differed from that disclosed in D15 only in that the innermost layer was not made of a rigid synthetic resin such as a polyester, but made of a polyocycloolefin in accordance with the definition of claim 1. An inventive step was acknowledged, as none of D15, D29 or D1 rendered obvious to replace the polyester rigid resin used in D15 by an innermost layer of the polyocycloolefin defined in claim 1 to provide a functional layer resin not absorbing the functional compound of the drug.

V. Appeals against that decision were lodged by the patent proprietor and by the opponents.

VI. The patent proprietor submitted with their statement setting out the grounds of appeal (letter of 15 March 2016) a main request and an auxiliary request 1. The main request corresponded to the third auxiliary request underlying the contested decision in which the formula (1), (1') and (2) had been replaced by the following formulae

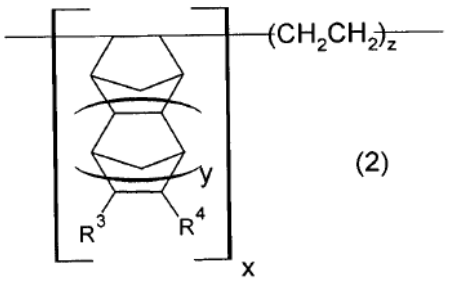


(1)



(1')

and



(2)

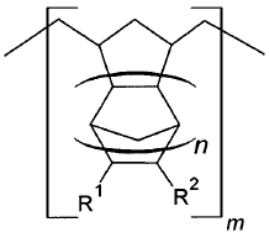
.

The first auxiliary request corresponded to the third auxiliary request underlying the contested decision.

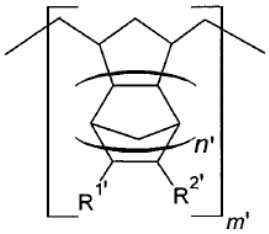
VII. By letter of 8 August 2016 the patent proprietor responding to the statement of grounds of appeal of opponent 2 submitted auxiliary requests 2 and 3. Claim 1 of auxiliary request 2 read as follows:

"1. A drug solution filling plastic ampoule comprising:
a flexible container body;
a fusion-bonded portion which seals a mouth of the container body; and
a holder tab connected to the fusion-bonded portion for wrenching off the fusion-bonded portion,
wherein
the container body, the fusion-bonded portion and the holder tab are integrally molded from a tubular parison including two or more layers,
the container body is molded by holding the parison between split mold pieces and, after a drug solution is filled in the container body, the mouth is sealed, and
at least one of the layers of the parison is a functional layer having a steam permeation preventing capability, a drug permeation preventing capability and a drug absorption/adsorption preventing capability,
wherein the functional layer is the innermost layer and is composed of a polycycloolefin layer which is a polymer having a repeating unit represented by

the following formula (1) and a repeating unit represented by the following formula (1'),



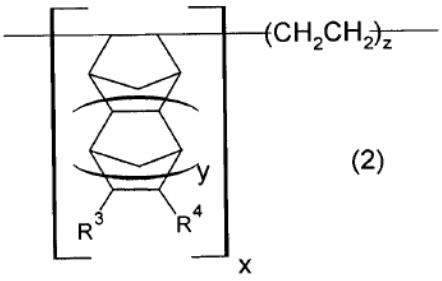
(1)



(1')

wherein R^1, $R^{1'}$, R^2 and $R^{2'}$, which may be the same or different, are each hydrogen, a hydrocarbon residue, a halogen, an ester group, a nitrile group or a pyridyl group; R^1, $R^{1'}$, R^2 and $R^{2'}$ may be combined to form a ring; m and m' are each an integer not smaller than 1; and n and n' are each 0 or an integer not smaller than 1,

or a polymer having a repeating unit represented by the following general formula (2);



(2)

wherein R^3 and R^4, which may be the same or different, are each hydrogen, a hydrocarbon residue, a halogen, an ester group, a nitrile group or a pyridyl group; R^3 and R^4 may be combined to form a ring; x and z are each an integer not smaller than 1; and y is 0 or an integer not smaller than 1."

Claim 1 of auxiliary request 3 had the same wording as claim 1 of auxiliary request 2 except that the formulae (1), (1') and (2) were those depicted in claim 1 of the third auxiliary request underlying the contested decision (section II above).

In its rejoinder of 8 August 2016 the patent proprietor further requested as auxiliary request 4 that the patent be maintained on the basis of the fourth auxiliary request underlying the contested decision.

VIII. A communication of the Board dated 1 February 2019 sent in preparation for oral proceedings was issued.

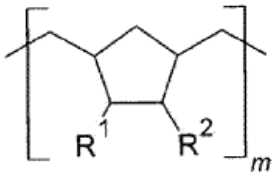
IX. Four additional auxiliary requests labelled auxiliary requests 5 to 8 were submitted by the patent proprietor with letter of 5 March 2019. Claims 1 of those requests differed from claim 1 of auxiliary request 3 in the following manner:

Auxiliary request 5

- n and n' were defined to be each an integer not smaller than 1

Auxiliary request 6

- formulae (1) and (1') were replaced by the following single formula:

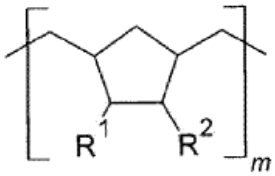


wherein the meaning of R^1, R^2 and m given in formula (1) of auxiliary request 3 was retained,

- in formula (2) y was defined to be 1

Auxiliary request 7

- formula (1) and (1') were replaced by the following formula



as in auxiliary request 6
- the possibility of the innermost layer to be a polymer having a repeating unit represented by formula (2) was suppressed

Auxiliary request 8

- the possibility of the innermost layer to be a polymer having a repeating unit represented by formula (1) or (1') was suppressed
- in formula (2) y was defined to be 1.

X. During the oral proceedings which took place on 12 March 2019 the main request and auxiliary request 1 as submitted with letter of 15 March 2016 were withdrawn.

XI. As far as relevant to the present decision, the submissions of the patent proprietor can be summarized as follows:

Admittance of auxiliary requests 2 and 3

(a) Before the opposition division opponent 2 had raised an objection for lack of clarity concerning formulae (1) and (1') only during the oral proceedings. In such a situation, procedural

fairness called for a possibility to reply to this objection and to submit further requests with the statement setting out the grounds of appeal. For this reason the main request submitted with the statement of grounds of appeal had to be admitted. Compared to the main request and auxiliary request 1, auxiliary requests 2 and 3, respectively, contained two additional amendments which were in answer to specific and detailed objections under Article 123(2) EPC raised against claim 1 as maintained. These objections had been raised for the time with the statement of grounds of appeal of opponent 2. Accordingly, auxiliary requests 2 and 3 should be admitted.

Auxiliary request 2 - inventive step

(b) D15 represented the closest prior art and the feature distinguishing the subject-matter of claim 1 from the ampoules disclosed in D15 was the material making the inner surface of the ampoule, i.e. a specific polycycloolefin instead of polyester or polycarbonate.

(c) As shown by the experimental results contained in the specification (paragraphs [0093], [0094], [0100] and [0101]) and indicated in paragraphs [0028], [0030] and [0062] thereof the characterizing feature of the invention resulted in an innermost layer imparting drug barrier property, absorption/adsorption preventing capability, steam permeation preventing capability, gas barrier property, heat resistance, transparency and stability of the ampoule. Even for a highly absorptive drug, namely nitroglycerine, absorption/

adsorption to the inner layer, permeation and leakage could be substantially suppressed.

(d) It was in principle agreed with the formulation of the problem indicated in point 36 of the Board's communication, but this should also include the ability of the ampoule to prevent absorption/ adsorption of the drug. Consequently, the technical problem solved over the closest prior art resided in the provision of an alternative ampoule, i.e. one which allowed the amount and concentration of the drug to remain stable upon storage, and prevented absorption/adsorption of the drug.

(e) In the absence of information about the capability of the specific polymers mentioned in claim 1 of the present requests to prevent drug absorption/ adsorption, the skilled person would not have used those instead of the polyester employed for the ampoule of D15. An inventive step could only be denied if the skilled person would have had a reasonable expectation that alternative polymers prevented the drug for being absorbed by or adsorbed to the innermost layer of the ampoule. However, the drug absorption/adsorption properties of the polymers described in prior art documents D15, D29, D32 and D1 were not addressed in these documents. The terms "less adsorption" on page 23, line 3 of D1 only related to the adsorption of particles, but not to that of a dissolved component such as a drug. In addition, while D1 mentioned norbornene and ethylene for the preparation of the polycycloolefins used in D1, the examples of that document did not relate to a polycycloolefin as defined in operative claims 1. Accordingly, the

subject-matter of operative claims 1 involved an inventive step.

Auxiliary requests 3 and 4

(f) The arguments supporting the existence of an inventive step for those requests were the same as those brought forward for auxiliary request 2.

Admittance of auxiliary requests 5 to 8

(g) Auxiliary request 5 corresponded to auxiliary request 3 but contained the amendment that n and n' were each an integer not smaller than 1. Auxiliary request 6 was based on auxiliary request 3 wherein formulae (1) and (1') had been replaced by that of ZEONOR whose use was disclosed in the application as filed. In addition, the polycycloolefin derived from formula (2) was more specifically defined and required y to be 1, said polycycloolefin corresponding to the structure of APEL. Auxiliary requests 7 and 8 covered the first and the second alternatives of auxiliary request 6, respectively. Those requests were an appropriate answer to the Board's preliminary opinion concerning whether it was possible under Article 123(2) EPC to correct formulae (1), (1') and (2) as had been done for claim 1 of the main request. Auxiliary requests 5 to 8 did not raise issues which could not be addressed during the oral proceedings. In respect of auxiliary requests 6 to 8 the polymers in the examples of D1 were different from ZEONOR and APEL meaning that D1 failed to suggest the claimed solution. Auxiliary requests 5 to 8 should be therefore admitted into the proceedings.

XII. As far as relevant to the present decision, the submissions of the opponents can be summarized as follows:

Admittance of auxiliary requests 2 and 3

(a) Auxiliary requests 2 and 3 could have been presented in the first instance proceedings and there was no compelling reason to present them in the appeal proceedings. Their filing resulted from issues under Articles 123(2) and 56 EPC that had been discussed at length before the opposition division. Reference was made to section 2 of the letter of opponent 2 of 17 October 2014 concerning allowability of the amendments. Moreover, the correction of the formulae (1), (1') and (2) resulted in a fresh case introducing subject-matter so far undiscussed. Consequently, auxiliary requests 2 and 3 should not be admitted into the proceeding pursuant to Article 12(4) RPBA.

Auxiliary request 2 - inventive step

(b) D15 represented the closest prior art as it disclosed an ampoule filled with a drug solution which had the same purpose as the present invention, i.e. the inhibition of drug adsorption by providing a drug-permeation resistant layer (D15b, paragraph [0001]). The ampoule according to claim 1 differed from that disclosed in D15 (D15a, Figure 4 and paragraph [0018]; D15b, page 14, lines 18-30, paragraph [0014], page 9, line 8, paragraphs [0047], [0054], [0055], [0058], [0064] and [0065]) only in that the inner layer was not made of a polyester, but of one of the polycycloolefins in accordance with claim 1.

(c) Since the polycycloolefins defined in claim 1 were not superior to the polyester of D15 the only sensible objective technical problem was the provision of an alternative polymer for the innermost layer.

(d) That choice was arbitrary and suggested by D29, D32 and D1, each disclosing the usefulness of the polycycloolefins defined in operative claims 1 for drug solution containers:

D29 disclosed polycycloolefins with the tradenames TOPAS, APEL and ZEONOR (page 335, Table 1) which according to the opposed patent were examples of polycycloolefins falling within the structural formulae (1), (1') or (2). Such polycycloolefins formed excellent barriers to water vapour (page 335, first column, last paragraph), were chemically stable to polar media and organic solvents (page 335, middle column, first paragraph; page 337, first paragraph) and could be used in common thermoplastic manufacturing methods (page 335, right column, last paragraph). Such polymers could be used in medical engineering (page 336, table, first line) and due to their vapour barrier property as barrier layers, for example in ampoules (page 337, left column, last paragraph). Their ability to prevent absorption/adsorption of drugs was implied by their use.

D32 also described the structure and properties of TOPAS (pages 1179-1181), i.e. high transparency, extremely low water absorption, thermal stability, good resistance toward acids, bases and hydrolysis and excellent water vapour barrier properties, i.e. the same advantageous properties mentioned in

paragraph [0062] of the opposed patent. The polymers of operative claim 1 were, as TOPAS, obtained by copolymerizing ethylene and a norbornene compound (D32, page 1179, third paragraph). Accordingly, the skilled person would have combined D15 with D32 arriving at an embodiment falling within claim 1.

D1 also related to multi-layered containers such as ampoules with a cyclic olefin resin as innermost layer (page 25, Figure 4), the containers being produced from a multi-layered parison (page 13, lines 25-30). These containers were described as being suitable for sanitary articles due to the properties of the cyclic olefin resins exhibiting excellent barrier properties to water vapour and gas, alkali resistance, acid resistance, chemical resistance, transparency, which show only little surface adsorption (as shown on page 23, line 3 and page 3, lines 5-6) and high inertness. The ability of the cyclic olefin resins used in D1 to prevent absorption/adsorption of drugs was also implied by their inertness to many chemicals. The mentions on page 4, line 50 and on page 12, lines 28-30 about the ability of the cyclic resins of D1 to preserve the quality of the drug present in the ampoule also motivated the skilled person to use these resins instead of the polyester used in D15, even if D1 were believed to be silent on the ability of the cyclic resins of D1 to prevent drug adsorbtion. D1 described from page 6 to page 10 a number of norbornene compounds for polycycloolefin resins. Norbornene (bicyclo[2,2,1]-2-heptoene) itself was disclosed on page 6, line 45. In pursuit of an alternative polymer for an innermost barrier layer of the ampoule in D15, the skilled person would

have had ample motivation to use the polymers disclosed in D1.

Consequently, claim 1 lacked an inventive step over the combination of D15 with any of D29, D32 and D1.

Auxiliary requests 3 and 4

(e) For the same reasons provided for auxiliary request 2 the subject-matter defined in auxiliary requests 3 and 4 also lacked an inventive step.

Admittance of auxiliary requests 5 to 8

(f) The issue concerning the correction of the formulae in claim 1 had been raised by opponent 2 before the Board's communication so that the filing of auxiliary requests 5 to 8 could not be in reaction to the Board's communication. Moreover, the auxiliary requests were either *prima facie* not allowable having regard to the requirement of inventive step or raised new issues with respect to the allowability of the amendments under Article 123(2) EPC. Accordingly, they should not be admitted into the proceedings.

XIII. The appellant (patent proprietor) requested that the decision under appeal be set aside and the patent be maintained on the basis of the claims of auxiliary requests 2 or 3, both submitted with letter of 8 August 2016, or alternatively on the basis of the fourth auxiliary request submitted on 21 October 2015 during the oral proceedings before the opposition division, or alternatively on the basis of auxiliary requests 5 to 8 all submitted with letter of 5 March 2019.

XIV. The appellant (opponent 2) requested that the decision under appeal be set aside and the European patent be revoked. Furthermore, it requested that auxiliary requests 2, 3 and 5 to 8 be not admitted into the proceedings.

XV. Opponent 1 requested that the appeal be dismissed.

Reasons for the Decision

Admissibility of the appeal filed by opponent 1

1. By communication of 31 March 2016, received by opponent 1, the Registry of the Board informed opponent 1 that it appeared from the file that the written statement of grounds of appeal had not been filed, and that it was therefore to be expected that the appeal of opponent 1 would be rejected as inadmissible pursuant to Article 108, third sentence, EPC in conjunction with Rule 101(1) EPC. Opponent 1 was informed that any observations had to be filed within two months of notification of the communication. No reply was received and no written statement setting out the grounds of appeal was filed by opponent 1 within the time limit provided by Article 108, third sentence, EPC in conjunction with Rule 126(2) EPC. In addition, neither its notice of appeal nor any other document filed contains anything that could be regarded as a statement of grounds pursuant to Article 108 EPC and Rule 99(2) EPC. Therefore, the appeal of opponent 1 has to be rejected as inadmissible (Rule 101(1) EPC), which was not disputed. Opponent 1 is therefore party to the appeal proceedings as of right pursuant to Article 107, second sentence, EPC.

Admittance of auxiliary request 2 and auxiliary request 3

2. After the withdrawal during the oral proceedings of the main request and auxiliary request 1 the claim requests labelled auxiliary request 2 and auxiliary request 3 submitted with the rejoinder of the patent proprietor became the main request and first auxiliary request, respectively. For the sake of simplicity they will still be referred to as auxiliary requests 2 and 3 in the present decision. Their admittance, disputed by opponent 2, underlies the stipulations of Article 12(4) RPBA which requires the Board to take into account everything presented by the parties under Article 12(1) RPBA if and to the extent that it relates to the case under appeal and meets the requirements in Article 12(2) RPBA, while giving the Board the power to hold inadmissible *inter alia* requests which could have been presented in the first instance proceedings.

2.1 Compared to the third auxiliary request underlying the contested decision, auxiliary request 2 contains the following amendments:

(i) the formulae (1), (1') and (2) have been replaced by those indicated in above section VII and

(ii) the wordings defining the functional layer have been modified to read "having ~~at least one characteristic property selected from the group consisting of~~ a steam permeation preventing capability, a drug permeation preventing capability and a drug absorption/adsorption preventing capability" and "is the innermost layer and is composed of a polycycloolefin layer **which is a** ~~made of at least one~~ polymer" (insertions and deletions in comparison to the wordings used in the third auxiliary request underlying

the contested decision are indicated by the Board in bold and strike through, respectively).

2.2 It is undisputed that the second auxiliary request submitted with the rejoinder of the patent proprietor, as well as the submissions in its respect, relate to the case under appeal and meet the requirements of Article 12(2) RPBA. Opponent 2, however, is of the opinion that the Board should exercise its discretionary power conferred to it by Article 12(4) RPBA to hold inadmissible auxiliary request 2, as it could have been presented in the first instance proceedings. In this context, the question to be answered is not whether auxiliary request 2 could have been presented before the first instance, but rather whether the situation was such that the filing of this request should have taken place already at this stage (see for example T 1162/11 of 20 October 2015, point 2.2 of the reasons for the decision and T 0273/11 of 28 January 2015, point 1.1 of the reasons for the decision).

2.3 The modification in respect of formulae (1), (1') and (2) already incorporated in the main request submitted with the statement setting out the grounds of appeal constitute an attempt to overcome the objection for lack of clarity against claim 1 of the third auxiliary request underlying the contested decision. In these formulae the change of place of the bracket with the index n, n' or y right above the $-CR^1-CR^2-$, $-CR^{1'}-CR^{2'}-$ or $-CR^3-CR^4-$ group, respectively, represents an alternative to the amendment submitted with the fourth auxiliary request during the oral proceedings defining n and n' to be each an integer not smaller than 1.

2.4 It is undisputed that the clarity objection against claim 1 of the third auxiliary request underlying the contested decision was raised for the first time during the oral proceedings. Accordingly, having regard to the difficulty for the representative of the patent proprietor to provide an immediate and appropriate response during the oral proceedings, for example by consulting the patent proprietor, in order to assess the various possibilities for amending claim 1 of the then pending third auxiliary request, the patent proprietor should be given on appeal an additional and proper opportunity to amend its claims in this respect, irrespective of whether the representative of the patent proprietor could react to the above objection during the oral proceedings with the filing of the fourth auxiliary request. This is even more the case in view of the further remark of opponent 2 during the oral proceedings drawing attention to the fact that polycycloolefins under the trade name ZEONOR did not correspond to polymers with formulae (1) and (1') defined in claim 1 of the fourth auxiliary request, so that no example of the patent in suit reflected the subject-matter of the fourth auxiliary request (see minutes, page 11, last sentence of the first full paragraph) and the statement of the representative of the patent proprietor during the oral proceedings showing the absence of reliable information in this respect at this stage of the proceedings (see minutes, page 11, last sentence of the second full paragraph and page 13, first paragraph). The modification of formulae (1), (1') and (2) already submitted in the main request submitted with the statement setting out the grounds of appeal was retained in auxiliary request 2.

2.5 Regarding the amendments of the wordings defining the functional layer, those changes were necessitated by

objections under Article 123(2) EPC directed against wordings contained in the main request which objections were raised first with the statement of grounds of appeal of opponent 2, although the wordings in questions were already present in the third auxiliary request underlying the contested decision. The argument of opponent 2 that these objections had been already raised in the last section of its submissions on Article 123(2) EPC in the letter of 17 October 2014 is not correct. This section, although it relates to the allowability under Article 123(2) EPC of the definition of the functional layer, concerns a different definition of that layer and does not address that the innermost layer should be defined to be composed of a polycycloolefin to comply with the requirement of Article 123(2) EPC. Accordingly, there was not reason for the patent proprietor to submit those modifications of the definition of the functional layer at an earlier stage of the procedure.

2.6 Consequently, the amendments to the third auxiliary request underlying the contested decision which resulted in operative auxiliary request 2 were timely submitted. The same must be true for auxiliary request 3 which contains the same amendments to the exception of the modification of formulae (1), (1') and (2).

2.7 Consequently, auxiliary requests 2 and 3 submitted by letter of 8 August 2016 are admitted into the proceedings (Articles 12(2) and 12(4) RPBA).

Auxiliary Request 2

Inventive step

Closest prior art

3. As described in paragraphs [0002] and [0003] of the specification plastic ampoules using polyethylene (PE) or polypropylene (PP) were known to have been used in replacement of glass ampoules since the latter were not satisfactory, in particular in view of possible contamination of the drug solution with ampoule shards upon opening of the ampoule and risk that aluminum contained in the glass of the ampoule would leach into the drug solution. However, PE and PP are highly absorbent of and highly permeable among others to oxygen, water vapour and carbon dioxide gas which does not make them suitable as a material for ampoules containing an easily oxidizable drug or drug solution. This is in particular the case for ampoules having a small volume, since the content of the ampoule is reduced due to moisture permeation, thereby resulting in remarkable increase of the concentration of the drug in the drug solution (paragraph [0003]).

According to paragraph [0012] of the specification, an object of the present invention was to provide a drug solution filling plastic ampoule which is capable of preventing steam, gases other than steam, light rays or a drug from intruding into or leaking out of the ampoule, or preventing a drug, a drug solution or a solvent contained in the ampoule from being absorbed in or adsorbed on an interior surface of the ampoule. It is implicit from the above and as illustrated by paragraph [0003] of the specification describing the problems of using polyethylene and polypropylene resins

for ampoules that the aim of the patent in suit was to provide plastic ampoules for drugs in which the drug concentration does not vary upon storage providing an improvement over those ampoules based on polyethylene and polypropylene resins.

3.1 D15 describes a sealable plastic ampoule comprising an innermost layer of rigid synthetic plastic, preferably a polyester or a polycarbonate resin (D15b, claims 1, 5 and 7; paragraphs [0008] to [0010] and [0054] to [0057]), which layer *inter alia* provides gas or water vapour barrier properties (paragraph [0058]) and does not adsorb liposoluble drugs over a long period, meaning that the amount and concentration of liposoluble drugs can be kept constant (page 6, paragraph [0009]; page 7, paragraph [0013]; page 9, lines 12-20; page 15, paragraphs [0064] and [0065]).

3.2 The Board is therefore satisfied, in line with the submissions of the parties and the finding of the opposition division that the closest prior art is represented by the ampoule of D15 described in the preceding paragraph. It was also agreed that the subject-matter of operative claim 1 differs from the closest prior art only in that the plastic ampoule comprises an innermost layer composed of a polycycloolefin layer as defined in operative claim 1 instead of an inner surface of a rigid synthetic resin such as polyester or polycarbonate.

Problem successfully solved

4. Having regard to the problem successfully solved by the ampoule of operative claim 1 over the ampoule disclosed in D15, the patent proprietor referred to the experimental results shown with Example 1 of the patent

in suit (paragraphs [0093], [0094], [0100] and [0101] of the specification).

4.1 It was not disputed that this Example 1 illustrates an ampoule in accordance with operative claim 1. The innermost functional layer of this ampoule is made of a polycycloolefin, available under the trade name of ZEONOR 1020R from Nippon Zeon Co., which is prepared by ring-opening polymerization of a norbornene monomer and hydrogenation of the resulting polymer (paragraphs [0093], [0094], [0101], Table 1). The repeating units of these material are in accordance with formula (1) of operative claim 1.

4.2 According to that Example 1 the absorption and adsorption of nitroglycerine in/on the interior surface of the ampoule and the permeation and leakage of nitroglycerine out of the ampoule is sufficiently suppressed with not less than 95 wt% of nitroglycerine remaining in the ampoule after two weeks of storage (paragraph [0101]). It is therefore concluded in paragraph [0101] that the ampoule of Example 1 is excellent in drug absorption/adsorption preventing capability and drug permeation preventing capability, this effect being attributed to the use of the polycycloolefin layer. These experimental results therefore support the indication in paragraph [0030] of the specification that the use of the polycycloolefin layer as the innermost layer of the ampoule prevents the drug from being absorbed in or adsorbed on the innermost layer of the ampoule and the indication in paragraph [0028] that, when the functional layer includes a polycycloolefin layer, the drug solution filling plastic ampoule is imparted with the drug permeation preventing capability (drug barrier property), the drug absorption/adsorption preventing

capability and the steam permeation preventing capability. This was not contested by the opponents.

4.3 Although a quantitative comparison of the results obtained with the ampoule according to Example 1 of the patent in suit and that of the closest prior art is not possible, since the test conditions and the drug used are not the same, it is however reasonable in view of the indications provided in the patent in suit, in line with the parties' submissions, that the problem successfully solved by the subject-matter of operative claim 1 is the provision of further ampoules which provide an effect similar to that obtained with the ampoule of the closest prior art, namely ampoules which allow the amount and concentration of the drug to remain stable upon storage.

4.4 The patent proprietor, although agreeing with that formulation, pointed out that the formulation of the problem should also includes prevention of permeation and absorption/adsorption of the drug. In this respect, the Board notes that, as indicated in paragraph [0015] of the specification the characteristic properties required for the functional layer in the present invention are the gas permeation preventing capability (gas barrier property), the steam permeation preventing capability (steam barrier property), the light ray permeation preventing capability (light ray barrier property), the drug permeation preventing capability (drug barrier property) and the drug absorption/ adsorption preventing capability. It is obvious that all these properties are required to obtain ampoules which allow the amount and concentration of the drug to remain stable upon storage, so that the definition of the problem formulated in above point 4.3 already implies all these requirements, including the

prevention of permeation and absorption/adsorption of the drug, which therefore does not need to be explicitly recited when defining the problem solved over the closest prior art.

4.5 Furthermore, defining the problem solved over D15 by putting more weight on one of those properties, although all are necessary as indicated in paragraph [0015] of the specification, entails the danger of an assessment of inventive step lacking objectivity. In all steps of the problem and solution approach, the analysis to be made should be based on objective criteria taking into account the situation encountered in reality by the inventor, avoiding an artificial approach. Concerning the definition of the problem, it is established case law that a formulation of the problem which anticipates the solution, and therefore disadvantages the patent proprietor, or an unrealistic and artificial definition of the problem, advantaging the patent proprietor as it would unduly reduce the amount of relevant evidence for assessing obviousness of the solution, constitute two extremes which do not lead to an objective assessment of inventive step and therefore must be avoided.

4.6 Accordingly, the problem successfully solved by the subject-matter of operative claim 1 vis-à-vis the closest prior art is the provision of further ampoules which allow the amount and concentration of the drug to remain stable upon storage.

Obviousness of the solution

5. It remains to be decided whether or not the proposed solution to the above problem, i.e. the use of an innermost layer as defined in operative claim 1 instead

of an innermost layer of rigid synthetic plastic such as a polyester or a polycarbonate, was obvious to the skilled person in view of the state of the art. The opponents referred to D1, D29 and D32.

5.1 D1 like the patent in suit aims at improving plastic ampoules replacing glass ampoules. According to D1, plastic materials are to be used instead of glass as the latter upon opening can result to glass particles contaminating the drug solution (page 2, lines 31-33). In addition the glass material contains iron or manganese ions added for reducing deterioration by ultraviolet radiation of the pharmaceutical contained in the ampoule, which ions are susceptible to be found in said product (page 2, lines 34-37). According to D1 the common plastic materials known to be used as replacement for glass were for example PVC, PE resins of various types, PP, EVA, PVDC, PET and PC (like in D15) and Nylon. D1 explains in great detail from page 2, line 45 to page 4, line 29 the drawbacks of those plastics as far as the preservation of pharmaceuticals is concerned. These disadvantages are in particular linked to the oxygen permeation of the plastics resulting in oxidation of the content of the ampoule (PE, PP, EVA, PET), their water absorbing property and moisture permeability (PVC, PET), their opacity (PE, PP), their lack of suitability for steam sterilization (PE, PP), their ability to adsorb pharmaceuticals (EVA) or the use therein of plasticizers or metal salts susceptible to be eluted from the ampoule and to contaminate its content (PVC, PVDC).

5.2 Accordingly, it can be understood that the objective of D1 (page 4, lines 50-54) was among others to develop a plastic based container capable of stably preserving pharmaceuticals, as containers based on PVC, PE resins

of various type, PP, EVA, PVDC, PET and PC (like in D15) and Nylon were not satisfactory in this respect. This according to D1 could be achieved by using a resin formed of a cyclic olefin compound or a bridged polycyclic hydrocarbon compound (page 5, lines 17-22 and claim 1), in particular for an ampoule or a container for a small quantity sample consisting of those resins (page 12, line 53, Figure 1, Figure 6 and page 4, lines 39-40 and 48-49). D1 describes in the paragraph bridging pages 12 and 13 that the containers using these materials are capable of maintaining the quality of medicaments for a long time even if they are very unstable.

5.2.1 Having regard to page 5, lines 17-20 of D1, the skilled person understands that the improvement in stability compared to resins mentioned above, e.g. PET and PC, i.e. the same material as used in D15, is due to the fact that resins formed of a cyclic olefin compound or a bridged polycyclic hydrocarbon compound have excellent properties regarding alkali resistance, acid resistance, water proof property, chemical resistance, heat resistance, oxidation resistance and transparency. It is furthermore suggested having regard to the claimed superiority of the resins used in D1, i.e. resins of a cyclic olefin compound or a bridged polycyclic hydrocarbon compound, over EVA (page 3, lines 5-6; page 4, lines 30-37), that those do not adsorb pharmaceuticals. This above teaching is summarized again in the passage concluding the description of D1, i.e. the paragraph bridging pages 22 and 23.

5.2.2 Moreover, D1 also describes on page 13, lines 25-30 that the cyclic olefin resin or bridged polycyclic resin can be laminated with other resins to form a

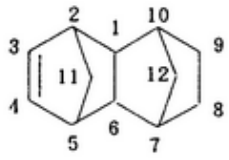
parison. Accordingly, the skilled person aiming at solving the problem defined in above point 4.6 would have been prompted by D1 to replace the innermost layer made of a rigid synthetic resin used in D15 by an innermost layer composed of a resin of a cyclic olefin compound or a bridged polycyclic hydrocarbon compound suggested in D1.

5.2.3 Examples of the cyclic olefin compounds to be used in accordance with the teaching of D1 are given on pages 6 to 10 of that document. They include among others:

bicyclo[2,2,1]-2-heptoene (norbornene)

(D1, page 6, lines 41-50), i.e. one of the monomers used to form repeating units of formula (1) (1') (2) defined in operative claim 1, wherein n = n' = y = 0 and R^1, R^2, $R^{1'}$, $R^{2'}$, R^3 and R^4 are all H, and

tetracyclo[4,4,0,$1^{2,5}$,$1^{7,10}$]-3-dodecene



(D1, page 8, lines 33-42), i.e. a monomer used for forming repeating units of formula (1) (1') (2), wherein n = n' = y = 1 and R^1, R^2, $R^{1'}$, $R^{2'}$, R^3 and R^4 are all H.

According to page 10, lines 53-58 and page 11, lines 1-20 of D1 the monomers recited on pages 6 to 10 can be polymerized as such or copolymerized with further olefins such as ethylene and the polymerisation method to be employed can include a hydrogenation step as mentioned on page 11, lines 10-15.

5.2.4 As illustrated in paragraph [0093] of the patent in suit, polymers belonging to the class of materials recommended in D1 were available to the skilled person under the trade names:

ZEONOR which refers to resins prepared by ring-opening polymerization of norbornene which monomer is suggested in D1 (see above point 5.2.3) and hydrogenation of the resulting polymer, i.e. resins corresponding to formula (1) in claim 1,

APEL which refers to copolymers of ethylene and tetracyclododecene, which monomer is also suggested in D1 (see above point 5.2.3), i.e. resins corresponding to formula (2) in claim 1 or

TOPAS which, as shown in D32, page 1179, refers to resins in accordance with formula (2) of claim 1 wherein y is zero and R^3 and R^4 are H.

5.2.5 D29 is an article concerning the properties of the resin materials sold under the trade names ZEONOR, APEL and TOPAS. D29 does not only confirm that materials sold under those trade names have some of the beneficial properties of the materials recommended in D1, in particular excellent water vapour barrier properties (page 335, last paragraph of the left-hand column, page 336, Table and page 337, left-hand column, last paragraph), but also confirms the teaching of D1 that said materials are a substitute for glass for medical ampoules. The suitability of TOPAS materials to prepare medical articles in particular as they exhibit excellent water vapor barrier properties is furthermore confirmed in D32 (page 1180, lines 5-15 and page 1181, last paragraph before section 18.2).

5.2.6 In view of the above, the skilled person aiming at solving the problem defined in point 4.6 above would have been prompted by the prior art to replace the innermost layer made of a rigid synthetic resin in D15 by an innermost layer composed of a polycycloolefin material belonging to the family of resins suggested in D1, using in particular the materials commercially available under the trade names ZEONOR, APEL and TOPAS and whose known properties and recommended uses as described in D29 and D32 were in line with the teaching of D1, thereby arriving in an obvious manner at an ampoule falling within the ambit of claim 1 of auxiliary request 2.

5.3 Auxiliary request 2 is therefore not allowable, as the subject-matter of claim 1 does not involve an inventive step.

Auxiliary request 3 (submitted with letter of 8 August 2016) and fourth auxiliary request (submitted during the oral proceedings before the opposition division)

6. Claim 1 of auxiliary request 3 and claim 1 of the fourth auxiliary request differ from claim 1 of auxiliary request 2 solely by the definition of the material of the innermost layer.

6.1 Both claims 1 of these additional auxiliary requests cover ampoules corresponding to those constitutive of the closest prior art in which the material of the innermost layer has been replaced by resin materials sold under the trade names APEL, which resins fall within the definition of formula (2) (see point 5.2.4 above).

6.2 Moreover, having regard to the possibility of substituents R^3 and R^4 to form a ring in formulae (2) the subject-matter of claim 1 of auxiliary request 3 as well as the subject-matter of claim 1 of the fourth auxiliary request encompass the ampoules corresponding to those of the closest prior art in which the material of the innermost layer has been replaced by a resin material sold under the trade names TOPAS, corresponding to resins of formula (2) (see point 5.2.4 above).

6.3 For the same reason, having regard to the possibility of substituents R^1 and R^2 or $R^{1'}$ and $R^{2'}$ to form a ring in formulae (1) and (1'), respectively, the subject-matter of claim 1 of auxiliary request 3 also encompasses the ampoules representing the closest prior art in which the material of the innermost layer has been replaced by resin materials sold under the trade name ZEONOR (resins corresponding to formula (1) with n = 0).

6.4 In view of the above, the subject-matters defined in claim 1 of auxiliary request 3 and the fourth auxiliary request still encompass embodiments of auxiliary request 2 using the materials APEL, TOPAS and ZEONOR which, as indicated in above point 5.2.6, are obvious in view of the prior art. Accordingly, the subject-matter of auxiliary request 3 and that of the fourth auxiliary request do not involve an inventive step and these requests are consequently also not allowable.

Admittance of auxiliary requests 5 to 8

7. Auxiliary requests 5 to 8 were submitted one week before the oral proceedings. Therefore their admittance to the proceedings underlies the stipulations of

Articles 13(1) and 13(3) RPBA. The amendments contained in these requests concern all the definition of the formula of the material making the innermost layer of the ampoule.

7.1 The only justification presented by the patent proprietor for the submissions of these auxiliary requests was that they were in response to the written preliminary opinion of the Board according to which it had not been shown that the skilled person would have recognized that formulae (1), (1') and (2) described in the application as filed were in error. This however does not provide an appropriate justification for the late filing of these requests since the Board's preliminary opinion was based on the submissions made by opponent 2 in its rejoinder (page 4, third and fourth full paragraphs) and the submissions of the patent proprietor in the statement setting out the grounds of appeal (paragraph bridging pages 13 and 14 and subsequent paragraph).

7.2 Furthermore, Article 13(1) RPBA specifies that a board in exercising its discretion to admit and consider amendments to a party's case should take into account the current state of the proceedings and the need for procedural economy. One factor to be considered in the exercise of its discretion is therefore whether the newly filed requests can be considered *prima facie* allowable at least in the sense that all previous objections, in the present case at least the objection that their subject-matter lacked an inventive step, have been overcome. This is clearly not the case for those requests as the claimed subject-matter of all these requests still encompasses, as confirmed by the submissions of the patent proprietor, embodiments directed to ampoules comprising an innermost layer made

of either a material sold under the trade name ZEONOR or a material sold under the trade name APEL for which the Board concluded that they would lack an inventive step (point 5.2.6 above). In addition, it is also questionable whether the formulae defined in claims 1 of auxiliary requests 6 to 8 find a basis in the application as filed so that these requests raise new issues.

7.3 Accordingly the Board finds it appropriate to exercise its discretion under Article 13(1) RPBA by not admitting auxiliary requests 5 to 8 into the proceedings.

Order

For these reasons it is decided that:

1. The appeal of opponent 1 is rejected as inadmissible.

2. The decision under appeal is set aside.

3. The patent is revoked.

The Registrar: The Chairman:

B. ter Heijden D. Semino

Decision electronically authenticated