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**Datasheet for the decision
of 2 February 2012**

Case Number: T 0398/09 - 3.3.10
Application Number: 00107932.6
Publication Number: 1044957
IPC: C07C 67/54, C07C 69/54,
C07C 57/07, B01D 3/14
Language of the proceedings: EN

Title of invention:

Process for inhibiting the polymerization of easily-
polymerizable compounds

Proprietor:

NIPPON SHOKUBAI CO., LTD.

Opponents:

BASF SE
THE DOW CHEMICAL COMPANY

Headword:

Distillation of (meth)acrylic acid (esters)/NIPPON SHOKUBAI

Relevant legal provisions:

EPC Art. 56, 100(c)

Keyword:

"All requests: inventive step (no)"

Decisions cited:

T 0020/81, T 0355/97

Catchword:

-



Case Number: T 0398/09 - 3.3.10

DECISION
of the Technical Board of Appeal 3.3.10
of 2 February 2012

Appellant:
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 22 December 2008
revoking European patent No. 1044957.

Composition of the Board:

Chairman: P. Gryczka
Members: J. Mercey
F. Blumer

Summary of Facts and Submissions

- I. The Appellant (Proprietor of the Patent) lodged an appeal against the decision of the Opposition Division revoking European patent No. 1 044 957.
- II. Notice of Opposition had been filed by the Respondent (Opponent II) requesting revocation of the patent in its entirety on the grounds of lack of novelty and inventive step (Article 100(a) EPC) and extending the subject-matter of the patent in suit beyond the content of the application as filed (Article 100(c) EPC). *Inter alia* the following documents were submitted in opposition proceedings:
- (2) US-A-3 717 553 and
 - (3) EP-A-46 980.
- III. The decision under appeal was based on the patent as granted and on the patent as amended according to the then pending first auxiliary request.

Claim 1 of the patent as granted read as follows:

"A process for inhibiting polymerization of (meth)acrylic acid and/or (meth)acrylic ester contained in a liquid which is being distilled in a distillation unit, wherein the liquid is supplied to a constitutive member by a spraying and supplying means, said constitutive member being placed in the distillation unit, the liquid is sprayed all over the surface of the constitutive member, said liquid having substantially the same composition with that of a liquid surrounding said constitutive member and said constitutive member

being one selected from the group consisting of a tray supporting member, a packing supporting member, a flange, a nozzle, an end plate, a column wall, a chimney, a downcomer, a baffle, and a shaft of an agitator."

IV. The Opposition Division held that the subject-matter of the claims according to the then pending main and auxiliary request did not extend the subject-matter of the patent in suit beyond the content of the application as filed, was novel, but did not, however, involve an inventive step in view of *inter alia* document (2) in combination with document (3).

V. Together with its Statement of Grounds of Appeal dated 27 April 2009, the Appellant filed auxiliary requests 1 to 3, and with letter dated 19 November 2009, it filed an auxiliary request 4. At the oral proceedings, held on 2 February 2012, the Appellant withdrew auxiliary request 2, and renumbered auxiliary requests 3 and 4 as auxiliary requests 2 and 3, respectively.

Claim 1 of auxiliary request 1 differed from claim 1 of the main request in that the feature "distillation unit" was replaced by "distillation column" and "a baffle" and "a shaft of an agitator" were deleted from the list of constitutive members.

Claim 1 of auxiliary request 2 differed from claim 1 of the main request by virtue of the deletion of "a column wall" from the list of constitutive members.

Claim 1 of auxiliary request 3 differed from claim 1 of auxiliary request 1 in that it was specified that the

temperature of the sprayed liquid was 1 to 30°C lower than the surface of the constitutive member.

VI. The Appellant argued that the claims of all requests did not extend beyond the content of the application as filed. More particularly, it argued that basis for a process for inhibiting polymerization of (meth)acrylic esters was to be found a basis on *inter alia* page 1, lines 1 to 4 of the application as filed. The subject-matter of all requests was inventive over the teaching of document (2) taken alone, since document (2) described merely a passive system, wherein specific modifications of the distillation equipment itself, namely perforated trays, led to the wetting of the back surfaces and the tower wall with liquid flowing through holes in the trays, whereas the patent in suit actively wetted the constitutive members by spraying in order to avoid polymerization. The skilled person would not have combined the teaching of document (3) with that of document (2), because document (3) was concerned with the wetting of the dry surfaces of a condenser and not of constitutive members of a distillation column which were already covered in a liquid film. In addition, the vapour was maintained in a superheated state and constitutive members were heated in order to avoid condensation. The specific constitutive members defined in claim 1 of auxiliary request 2 were not described in either of documents (2) or (3), let alone that their entire surfaces should be sprayed. With regard to auxiliary request 3, a comparison of Examples 1 and 3 of the patent in suit showed that when the temperature of the sprayed liquid was 1 to 30°C lower than the surrounding or surface of the constitutive member,

surprisingly less polymerization occurred than when said liquid had an even lower temperature.

VII. The Respondent submitted that all of the requests contained subject-matter extending beyond the content of the application as filed, since not all (meth)acrylic esters were easily polymerizable, as required of the compounds of claim 1 as originally filed. The Respondent maintained its objections regarding novelty *vis-à-vis* documents different from those used to attack inventiveness. It also argued that auxiliary requests 1 and 3 should not be admitted into the proceedings and that the subject-matter of auxiliary request 3 was unclear. With regard to inventive step, the Respondent argued that the subject-matter of all requests was not inventive over document (2) alone, since once the skilled person appreciated that surfaces of the distillation apparatus should be wetted in order to avoid polymer formation, he would ensure that this occurred by any method, spraying being a wetting method routinely used in the art. Furthermore, document (3) taught that when distilling a readily polymerizable liquid such as (meth)acrylic esters, the condenser surfaces should be wetted, e.g. by conventional spraying means, in order to avoid undesirable polymerization. All of the constitutive members defined in claim 1 of all requests were usual parts of a distillation column, a column wall and a shaft of an agitator being specifically taught by documents (2) and (3), respectively. The feature in auxiliary request 3 that the temperature of the sprayed liquid was 1 to 30°C lower than the surface of the constitutive member was merely arbitrary, no effect for

said temperature difference having been shown, Examples 1 and 3 not being suitable for showing any improvement.

VIII. The Appellant requested that the decision under appeal be set aside and the patent be maintained on the basis of the main request, namely the patent as granted, or, subsidiarily, on the basis of auxiliary request 1 filed with letter dated 27 April 2009, or on the basis of auxiliary request 2, filed as auxiliary request 3 with letter dated 27 April 2009, or on the basis of auxiliary request 3, filed as auxiliary request 4 with letter dated 19 November 2009.

The Respondent requested that the appeal be dismissed.

IX. At the end of the oral proceedings the decision of the Board was announced.

Reasons for the Decision

1. The appeal is admissible.

All requests

2. *Amendments (Article 100(c) EPC)*

2.1 The Respondent argued that the claims of all of the requests contained subject-matter extending beyond the content of the application as filed, since the feature "(meth)acrylic esters" was not disclosed without the limitation that these esters should be easily polymerizable, as required by the compounds of claim 7 as originally filed, when combined with claim 1 as

originally filed. In view of steric hindrance of the ester group, at least some (meth)acrylic esters would not be easily polymerizable.

2.2 However, a process for inhibiting the polymerization of (meth)acrylic esters is disclosed on page 1, lines 1 to 4 of the application as filed, said passage not limiting these esters to those which are easily polymerizable. Instead, this passage states that the invention relates to the polymerization of "(meth)acrylic esters, and other easily polymerizable compounds", which implies that (meth)acrylic esters are *per se* easily polymerizable according to the invention. Thus, on restricting original claim 1 from "easily polymerizable compounds" to *inter alia* "(meth)acrylic esters", the specification that these should be easily polymerizable becomes superfluous.

2.3 For these reasons, the Board concludes that the unqualified feature "(meth)acrylic esters" is disclosed in the application as originally filed, such that the ground for opposition pursuant to Article 100(c) EPC based on said feature is not justified.

3. *Inventive step (Article 56 EPC)*

Lack of inventive step was the sole reason for refusing the patent in suit. Thus, the Board considers that in the present case, it is appropriate to first examine whether or not the claimed subject-matter of the Appellant's requests involves an inventive step, novelty having been objected to on the basis of a document which is prior art in the sense of Article

54(3) EPC, i.e. not relevant for inventive step of requests entitled to priority.

Main request

- 3.1 The patent in suit is directed to a process for inhibiting polymerization during the distillation of (meth)acrylic acid and/or (meth)acrylic ester by wetting surfaces of parts of the distillation unit.
- 3.1.1 A similar process already belongs to the state of the art, namely to the disclosure of document (2). More particularly, this document discloses the distillation of vinyl monomers, such as acrylic acid (see Example 1), whereby the distillation tower comprises perforated trays which ensure that the liquid flowing down through the tower causes a substantial wetting of the back surfaces of said trays and substantially the entire wall surface of the tower (cf. claim 1), said wetting being to prevent the polymerization of the vinyl monomers (see column 1, lines 61 to 67).
- 3.1.2 Thus, the Board considers, in agreement with the Appellant, the Respondent and the Opposition Division, that in the present case the distillation process of document (2) represents the closest state of the art and, hence, takes it as the starting point when assessing inventive step.
- 3.2 In view of this state of the art, the Appellant defined the problem underlying the patent in suit as the provision of an alternative process for inhibiting polymerization during the distillation of (meth)acrylic

acid and/or (meth)acrylic ester (see paragraph [0010] of the specification of the patent in suit).

3.3 As the solution to this problem, the patent in suit proposes the process according to claim 1, characterised in that the wetting of the surface of a constitutive member of the distillation unit is effected by spraying.

3.3.1 The Appellant argued that the claimed solution was also characterised by the fact that the constitutive member could be one which was not disclosed in document (2), namely a tray supporting member, a packing supporting member, a flange, a nozzle, an end plate, a chimney, a downcomer, a baffle, or a shaft of an agitator.

However, the constitutive member in claim 1 of the patent in suit may also be a column wall, which is also the case in document (2) (see point 3.1.1 above), such that so long as the claim is not restricted to constitutive members different from those of document (2), said members cannot be considered to be characterising features of the invention.

3.3.2 The Appellant additionally contended that the composition of the liquid to be sprayed, namely that it had substantially the same, and not exactly the same, composition as the liquid surrounding the constitutive member to be sprayed, was also a feature not disclosed in document (2) and thus characterising for the claimed solution. By virtue of this definition of said liquid, the claimed process embraced spraying with a wider range of liquid compositions than in document (2), wherein the composition of the wetting liquid could not

be controlled and thus had the same composition as that of the liquid surrounding the constitutive member.

However, a feature cannot be considered to be a distinguishing feature *vis-à-vis* a prior art feature merely by virtue of the fact that it is broader than the prior art feature, but nevertheless fully embraces said prior art feature. Since the composition of the wetting liquid in claim 1 of the patent in suit is defined as "having substantially the same composition with that of a liquid surrounding said constitutive member", it embraces the composition of the liquid flowing down through the tower according to document (2), which the Appellant did not contest. Thus, said feature also cannot be considered to be a feature characterising the solution claimed (cf. point 3.3.1 above).

3.4 The Board has no reasons to doubt, and the Respondent has not contested, that the technical problem defined above has effectively been solved by wetting the surface of a constitutive member of the distillation unit by spraying as defined in claim 1.

3.5 Finally, it remains to be decided whether or not the proposed solution to the problem underlying the patent in suit is obvious in view of the state of the art. In other words, whether in the light of document (2), which already teaches the perpetual wetting of surfaces of parts of a distillation column by percolation of the distillation liquid through specifically designed perforated trays in order to inhibit polymerization, it was obvious to carry out the wetting by spraying as opposed to percolation.

3.5.1 When starting from the process for distilling vinyl monomers with inhibition of polymerization known from document (2), it is a matter of course that the person skilled in the art seeking to provide an alternative distillation process wherein polymerization is inhibited would turn his attention to that prior art addressing distillation of the same monomers which also aims to avoid the problem of polymerization, for example, document (3). Said document (see page 3, lines 1 to 7 and page 7, lines 23 to 25) is concerned with distilling readily polymerizable liquids, such as (meth)acrylic acid and (meth)acrylic esters, without causing the formation of undesirable polymerization products. It prevents polymerization by wetting the entire surface of the condenser upon which the vapour from the distillation condenses (see page 3, lines 21 to 24), said wetting being carried out by "conventional spraying means" (see page 6, lines 1 to 21). Thus, the person skilled in the art would know from document (3) that the wetting of surfaces of a distillation unit on which polymerization may occur may also be carried out by spraying, and would thus incorporate this method into the process of document (2) without exercising any inventive ingenuity. For these reasons, the subject-matter of claim 1 is obvious.

3.6 For the following reasons the Board cannot accept the Appellant's arguments designed for supporting inventive step.

3.6.1 The Appellant argued that the skilled person would not have transferred the teaching of the spraying of the condenser from document (3) to the process of document

(2) in isolation, since in document (3), the vapour from the evaporator was maintained in a superheated state and the walls of the evaporator and conduit pipe leading to the condenser were heated so that the vapour would not condense until it reached the condenser, which was physically separated from the evaporator. Thus, the skilled person would not have transferred the teaching concerning the spraying of dry surfaces without also superheating the distillation vapour.

However, the skilled person already knows from document (2) that he should ensure perpetual wetting of surfaces of the distillation column where polymerization is likely to occur, these being according to document (2) mainly at the tower wall, the back surfaces of the trays or the exterior surfaces of downcomers (see column 1, lines 31 to 33), i.e. where the vapour is partially condensed (see column 1, lines 50 to 60). He thus knows that if he achieves this wetting, polymerization is inhibited such that superheating of the vapour, as performed in document (3), would be superfluous. Hence, already being aware from document (2) that polymerization can be prevented by wetting of surfaces susceptible to formation of polymerization products, he would learn from document (3) that said wetting can be carried out by spraying and would therefore transfer this teaching from document (3) to the process of document (2).

3.6.2 The Appellant also argued that in document (3) the condenser was sprayed, which was not one of the constitutive members listed in the patent in suit, such that the skilled person could not arrive at the present

invention by simply combining the teachings of document (2) and (3).

However, as already discussed above, the necessity of wetting other constitutive members of the distillation unit, such as the column wall, is already taught by document (2) (see column 1, lines 31 to 33). The only teaching that the skilled person needs to transfer from document (3), when the problem underlying the patent in suit is merely to provide an alternative process for inhibiting polymerization during the distillation of (meth)acrylic acid and/or (meth)acrylic ester, is the **manner** in which the column wall should be wetted, not that it should be wetted in the first place. Hence, this argument of the Appellant does not convince the Board.

3.6.3 The Appellant further argued that document (3) was concerned with the wetting of a dry surface (see page 6, line 5), whereas the patent in suit was concerned with the prevention of stagnation of liquids on surfaces which were already covered in a liquid film.

However, the starting point for inventive step is document (2), in which acrylic acid is distilled in a distillation column. Since the distillation process of the patent in suit is not defined differently than that of document (2), then the liquid covering of the constitutive members of the distillation unit, such as column walls, before wetting, cannot be a distinguishing feature of the process of the patent in suit. Thus even if the surfaces wetted in document (2) were already covered in a liquid film, document (2) teaches nonetheless that said surfaces should be

perpetually wetted, document (3) merely providing the skilled person with another method for carrying out this wetting.

- 3.7 As a result the Appellant's main request is not allowable for lack of inventive step pursuant to Article 56 EPC.

Auxiliary request 1

4. *Inventive step (Article 56 EPC)*

4.1 Claim 1 of auxiliary request 1 differs from claim 1 of the main request in that the feature "distillation unit" has been replaced by "distillation column" and "a baffle" and "a shaft of an agitator" have been deleted from the list of constitutive members. However, the constitutive member may still be a column wall.

4.2 Since the closest prior art document (2) already discloses that the distillation unit is a distillation column, this amendment cannot contribute to inventiveness of the subject-matter of claim 1 of auxiliary request 1 *vis-à-vis* this document.

4.3 The Appellant argued that the skilled person would no longer have combined the teaching of document (3) with that of document (2), since the wetting in document (3) took place in the condenser which, in contrast to the term "distillation unit", did not fall under the term "distillation column".

However, as indicated in point 3.6.2 above, the only teaching that the skilled person needs to transfer from

document (3) to arrive at the present invention is the **manner** in which the column wall should be wetted, namely by spraying.

- 4.4 Therefore, the considerations having regard to the assessment of inventive step given in points 3.1 to 3.6 above and the conclusion drawn in point 3.7 above with respect to claim 1 of the main request apply also to claim 1 of auxiliary request 1.

Auxiliary request 2

5. Claim 1 of auxiliary request 2 differs from claim 1 of the main request in that "a column wall" has been deleted from the list of constitutive members. The distillation process does therefore now indeed additionally differ from the process of document (2) by the nature of the constitutive member to be wetted, namely a tray supporting member, a packing supporting member, a flange, a nozzle, an end plate, a chimney, a downcomer, a baffle, or a shaft of an agitator (see point 3.3.1 above).

- 5.1 It thus now needs to be examined whether the wetting by spraying of these specific constitutive members can contribute to the inventiveness of the distillation process.

- 5.2 The closest prior art document (2) states that the polymerization takes place "mainly" at the tower wall, the back surfaces of the trays and the exterior portions of the downcomers, these surfaces clearly being the largest surfaces in a distillation column and thus offering a greater area on which polymerization

can occur. However, document (2), by virtue of the use of the term "mainly", does not exclude the formation of polymers on other constitutive members of a distillation column, and teaches that polymerization is a ready occurrence on the aforementioned surfaces in view of the fact that vapour is partially condensed thereon (see column 1 lines 50 to 60). Furthermore, document (3) teaches that the undesirable polymerization products are mainly formed at the dead spaces (i.e. liquid and vapour retention portions), the vapour-liquid contacting zones, the vapour phase zones in which the effect of the polymerization inhibitors is low and the like. Thus, the teaching of both of these documents is of general applicability to any surfaces in distillation units where vapour (partially) condenses, the problem of polymerization due to the adhesion of condensate on an agitator shaft, for example, being specifically mentioned in document (3) (see page 7, lines 11 to 19 and Fig. 1, 19). It was thus obvious for the skilled person to spray the surface of any constitutive member where vapour condensation may occur, such as an agitator shaft, in order to prevent polymerization.

- 5.3 The Appellant argued that the gist of the teaching of document (2) was to avoid the use of downcomers. The agitator shaft mentioned in document (3) was heated in order to prevent condensation, and thus also polymerization, thereon. Hence, neither of these documents taught the wetting of these constitutive members in order to prevent polymerization, but rather removal of said member and heating thereof, respectively. Document (3) also taught to keep the

distillation apparatus simple, which implied a lack of other constitutive members.

However, both documents teach that polymer formation is particularly likely at parts of a distillation unit upon which condensation occurs, document (3) specifically mentioning the shaft of an agitator in this respect. Both documents teach that polymerization upon condensation can be avoided by wetting, in the case of document (3), by spraying. That polymerization may **also** be avoided by the removal of downcomers or by heating of constitutive members and superheating of the gaseous phase does not lessen these teachings.

- 5.4 Thus the considerations having regard to inventive step with respect to the main request apply also to the auxiliary request 2, i.e. the subject-matter claimed does not involve an inventive step.

Auxiliary request 3

6. Claim 1 of auxiliary request 3 differs from claim 1 of auxiliary request 1 in that it is specified that the temperature of the sprayed liquid is 1 to 30°C lower than the surface of the constitutive member.
- 6.1 In view of this additional feature, the Appellant now defined the problem underlying the patent in suit as the provision of a process for inhibiting polymerization during the distillation of (meth)acrylic acid and/or (meth)acrylic ester which results in less polymerization (see paragraph [0016] of the specification of the patent in suit).

6.2 To demonstrate that the process achieves the alleged improvement, the Appellant, who by alleging this fact carries the burden of proving it (see T 355/97, point 2.5.1 of the reasons, not published in OJ EPO), relied upon a comparison of Examples 1 and 3 of the patent in suit. Example 1 allegedly showed that by spraying with a liquid having a temperature 10°C less than the surface of the constitutive member, namely a manhole, less polymerization occurred than when spraying with a liquid having a temperature 45°C less than said surface, as in Example 3.

6.2.1 The Appellant alleges that the temperature of the liquid sprayed in Example 1 was 10°C less, and that in Example 3, 45°C less, than the surface of the manhole.

However, the temperature of the surface of the manhole is not given in either example, the Appellant merely speculating that its temperature was the same as the bottom temperature of the column, which is given as 100°C. The manhole is, however, not at the bottom of the column (otherwise it would already be covered in liquid), but rather at some point above the bottom (as, for example, the manhole denoted 4 in Fig. 3 of the patent in suit), the column having a top temperature of 63°C. The manhole is also not necessarily insulated, such that its surface temperature does not have to be the same as the liquid film or vapour surrounding it. Since the surface temperature of the manhole in Example 1 is unknown, it cannot be determined with certainty whether spraying with a liquid having a temperature of 90°C in fact falls within the ambit of the newly introduced feature of claim 1 of auxiliary request 3, namely that the temperature of the sprayed liquid is

1 to 30°C lower than the surface of the constitutive member. As such, Examples 1 and 3 are not suitable for showing any improvement associated with this newly introduced feature.

- 6.2.2 The Appellant conceded that the surface temperature of the manhole was not explicitly given in either example, but argued that it could be assumed that the process conditions of Example 1 fell under the present claim, as it was usual patent drafting practice that examples fell within the claims, specifically drawing attention to original claim 2 in this respect. In any case, a clear tendency towards more polymerization upon excessive reduction of the temperature of the sprayed liquid could be concluded from Examples 1 and 3.

However, the Board holds that it cannot be assumed that the examples of the patent specification must fall within the scope of present claim 1, for at least the reason that there was no claim requiring the feature that the temperature of the sprayed liquid is 1 to 30°C lower than the surface of the constitutive member either in the application as filed or in the patent as granted.

With regard to original claim 2, this claim is directed to a process wherein the temperature of the sprayed liquid is **equal to** or lower than the **surrounding** of the constitutive member (emphasis added). Thus even if it were to be assumed that the process of Example 1 fell within the scope of this claim, it would still not necessarily fall under claim 1 of auxiliary request 3, wherein the temperature of the sprayed liquid must be

1 to 30°C **lower** than the **surface** of the constitutive member.

6.2.3 Furthermore, Examples 1 and 3 do not clearly show whether or not any improvement is in fact actually achieved in Example 1. More particularly, Example 1 states merely that "the operation could be continued over about one month without trouble" and Example 3 that "a noticeable amount of polymer was found in the withdrawn liquid after 25-day operation, and the operation was stopped to inspect the column. Polymer of about 0.5 kg was seen to be attached on the bottom of the column".

Thus in Example 3 the operation was stopped to "inspect" the column, not because it was clogged (as was the case, for example, in Example 2). One can thus only derive from these two examples that in Example 3, 0.5 kg of polymer was formed, the amount formed in Example 1 not being indicated. It is thus possible that polymer was indeed formed in the process of Example 1, but not of a sufficient amount to compromise the operation of the column. It is thus not possible to unambiguously conclude that less polymer is formed in Example 1.

6.2.4 Hence, the comparative Examples relied upon by the Appellant for supporting the alleged improvement cannot demonstrate that the technical problem has been solved, since it has not been shown that Example 1 falls under, and Example 3 outside, the scope of claim 1 of auxiliary request 3, and in any case, it has not been convincingly shown that less polymerization occurs in Example 1.

6.3 According to the jurisprudence of the Boards of Appeal, alleged but unsupported advantages cannot be taken into consideration in respect of the determination of the problem underlying the invention (see e.g. decision T 20/81, OJ EPO 1982, 217, point 3, last paragraph of the reasons). Since in the present case the alleged improvement, namely less polymerization, lacks the required experimental support, the technical problem as defined in point 6.1 above needs reformulation, namely as the provision of an alternative process as in point 3.2 above.

6.3.1 The temperature of the sprayed liquid of less than 1 to 30°C than the surface of the constitutive member is neither critical nor a purposive choice for solving the objective problem underlying the patent in suit, since no unexpected effect has been shown to be associated with this particular temperature range. The act of picking out at random a range for the temperature of the sprayed liquid is within the routine activity of the skilled person faced with the mere problem of providing an alternative process for inhibiting polymerization during the distillation of (meth)acrylic acid and/or (meth)acrylic ester. Therefore, the arbitrary choice of a temperature of the sprayed liquid of less than 1 to 30°C than the surface of the constitutive member cannot provide the claimed process with any inventive ingenuity.

6.4 Thus, the considerations having regard to inventive step with respect to auxiliary request 1 apply also to auxiliary request 3, i.e. the subject-matter claimed does not involve an inventive step.

7. *Other issues*

The Respondent also submitted that the subject-matter of all requests was neither novel nor inventive over a document being comprised in the state of the art at least according to Article 54(3) EPC, and that the subject-matter of auxiliary request 3 was not clear (Article 84 EPC). It also contested the admissibility of auxiliary requests 1 and 3 into the proceedings.

In view of the negative conclusion in respect of inventive step for the subject-matter of all requests starting from document (2) as closest prior art, as set out in points 3 to 6 above, a decision of the Board on these issues is unnecessary. In addition, the Respondent raised no objections under Article 123(2) EPC to any of the amendments made to the auxiliary requests, nor did the Board see any reason to question their allowability under this article of its own motion.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

C. Rodríguez Rodríguez

P. Gryczka