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Datasheet for the decision of 30 June 2017

Case Number: T 0103/14 - 3.3.06

Application Number: 03771549.7

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Title of invention:
BIOMIMETIC MEMBRANES

Applicant:
Applied Biomimetic A/S

Headword:
Membrane for producing electricity from light / Applied Biomimetic A/S

Relevant legal provisions:
EPC Art. 83, 114(2)
RPBA Art. 13(1), 13(3)

Keyword:
Admissibility of additional documents filed in the appeal - (no)
Sufficiency of disclosure - (no)

Decisions cited:
T 0766/91

Catchword:

Europäisches Patentamt
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Beschwerdekammern

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Case Number: T 0103/14 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 30 June 2017

Appellant: (Applicant)	Applied Biomimetic A/S c/o Danfoss A/S Nordborgvej 81 6430 Nordborg (DK)
Representative:	Abel & Imray Westpoint Building James Street West Bath BA1 2DA (GB)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 1 August 2013 refusing European patent application No. 03771549.7 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	L. Li Voti
Members:	P. Ammendola
	S. Fernández de Córdoba

Summary of Facts and Submissions

I. This appeal lies from the decision of the Examining Division to refuse European patent application no. 03 771 549.7.

II. During the substantive examination of this patent application the following documents were cited, *inter alia*:

D1 Nardin, C. and Meier, W.: "HYBRID MATERIALS FROM AMPHIPHILIC BLOCK COPOLYMERS AND MEMBRANE PROTEINS", Reviews in Molecular Biotechnology, vol. 90, no. 1, March 2002, pages 17-26

D7 Winterhalter, M. *et al*,: "Controlling membrane permeability with bacterial porins: application to encapsulated enzymes", Talanta, vol. 55: 965—971, 2001;

D8 Nardin, C. *et al*,: "Amphiphilic block copolymer nanocontainers as bioreactors", Eur. Phys. J., vol. E4: 403-410, 2001;

D9 Graff, A. *et al*,: "Virus-assisted loading of polymer nanocontainer", P.N.A.S., vol. 99(8): 5064-5068, 2002;

D10 WO 01/32146 A2.

III. The decision under appeal is based on the sets of claims labelled Main Request, and First to Third Auxiliary Request, filed by the Applicant with letter of 10 June 2013.

Claim 1 according to the Main Request reads as follows:

"*1. A biomimetic membrane comprising:*

a block copolymer matrix simulating a natural biological membrane and natural protein environment; and

cell membrane proteins incorporated into said matrix to form a membrane/protein composite; characterised in that two different cell membrane proteins are incorporated, which act in concert to create electricity from light."

Claim 1 according to the First to Third Auxiliary Requests read, respectively, as follows: (amendments with respect to Claim 1 of the Main Request made apparent by the Board):

"*1. A biomimetic membrane...two different cell membrane proteins are incorporated,* ~~*which act in concert to create electricity from light*~~ ***said cell membrane proteins being bacteriorhodopsin and cytochrome oxidase.***",

"*1. A biomimetic membrane... and natural protein environment,* ***wherein said matrix is formed from tri-block copolymers having hydrophilic outer blocks and hydrophilic inner blocks****; and...*",

and

"*1. A biomimetic membrane... and natural protein environment,* ***wherein said matrix is formed from tri-block copolymers having hydrophilic outer blocks and hydrophilic inner blocks****; and ...two different cell membrane proteins are incorporated,* ~~*which act in concert to create*~~

~~*electricity from light*~~ ***said cell membrane proteins being bacteriorhodopsin and cytochrome oxidase.***"

Herein below the wordings "*tri-block copolymers having hydrophilic outer blocks and hydrophobic inner blocks*" and "*cell membrane proteins being bacteriorhodopsin and cytochrome oxidase*" used in the above claims are also respectively indicated in brief as **tri-block copolymers** and as **BR/COX.**

IV. In its decision the Examining Division came to the conclusion (reasons, points 1.1.3 and 2) that

> "the disclosure as a whole is **not** sufficient in the sense of Art. 83 EPC for enabling a skilled person to obtain the claimed membranes", i.e.

the membranes defined in claim 1 of the Main Request, as well as that

> "The objection under Art. 83 EPC ... applies to the application as a whole and, therefore, also to all auxiliary requests on file".

In particular, in its reasoning at point 1.1.1 the Examining Division addressed the question whether or not the skilled person would have been able, on the basis of the disclosure of the application and his common general knowledge, to prepare the membrane of claim 1 of the Main Request (see the first sentence at point 1.1.1, end of page 3). The Examining Division found in particular

- that (upper half of page 4) the sole description of the (nature of) block copolymer matrix of the claimed membrane was given in paragraph [0037], which comprised

a general mention of the possibility to use tri-block copolymers (for forming such matrix);

- that (second and third paragraphs on page 5)

> "The applicant has argued during the oral proceedings that the idea behind the present application is to use two different cell proteins for creating electricity from light. ln his opinion, the application is not concerned with the location of electrodes, the distribution of the proteins in the matrix, or the selection of the optimal triblock copolymers. All this is very well-known for person skilled in the art and would not represent an undue burden.
>
> The division considers that, in view of the lack of detail in the application, a skilled reader trying to reproduce the invention would have to rely on his common general knowledge.";

- that however no evidence of common general knowledge was available (i.e. that neither D1 nor the other scientific articles and patents on file were such evidence) because (page 5, fourth paragraph, initial sentence):

> "According to the established jurisprudence of the Boards of Appeal, common general knowledge is represented by basic handbooks and textbooks on the subject in question, it does not normally include patent literature and scientific articles (see e.g. T766/91).";

- that (subsequent sentence in the same paragraph) even when assuming

"to the benefit of the applicant, that the general knowledge is instead represented by the prior art documents on file....

..., **none** of these documents teach how to prepare a membrane comprising a **tri-block copolymer matrix** incorporating two different cell membrane proteins, which act in concert **to create electricity from light**.

Therefore, in the opinion of the division, the skilled person would inevitably need to start a research work.
The skilled reader would need to search first the appropriate composition of the solution with the starting components and decide, first of all, in which form the membrane should be, i.e. as a planar film or as vesicles, and how to incorporate the proteins into the matrix. He will need to find out which properties each protein should have in order to act in concert with the other protein, how they should be distributed in the matrix...."

- that, also in view of the reasons above, (page 6, second paragraph)

"...the lack of detail in the application concerning the preparation of the claimed membrane results in an undue burden on the skilled person trying to reproduce the invention."

V. The Applicant (**Appellant**) lodged an appeal against this decision. With its statement of grounds of appeal it filed as **Main Request** and **First to Third Auxiliary Requests** sets of claims respectively identical to the sets of claims with the same numbering already

considered by the Examining Division in its decision (see III, *supra*).

In the statement the Appellant rebutted the finding of insufficient disclosure of the Examining Division by, *inter alia*, making reference to D1 and D7 to D10.

VI. In a communication of 28 April 2017 issued by the Board in preparation for the then forthcoming oral proceedings of 30 June 2017, the Board, *inter alia*, focused on the fact (see points 5.3.1 to 5.5 of the communication) that the relevant disclosure of the application as filed in paragraphs [003] to [0058] did not provide any indication as to how to make the block copolymer matrix of the membrane of the invention other than by providing the indication that this matrix could be made using tri-block copolymers fulfilling certain "*desiderata*" listed in paragraphs [004] and/or [0037]. This information, however, did not allow *per se* to predict at least the general chemical formula of a suitable tri-block copolymer. Moreover, also in the Board's preliminary opinion there was no evidence on file as to the existence of common general knowledge that could help the skilled person in carrying out the invention (see points 5.6 to 5.7.1). Hence, the Board preliminarily found correct the finding of the Examining Division that substantial research work was needed to carry out the invention (see point 5.8 of the communication) and, thus, that none of the claim requests on file complied with Article 83 EPC (see points 5.10 and 6 of the communication).

VII. With letter of 19 May 2017 the Appellant, *inter alia*, filed nine new documents, some of which were textbooks and the reminder were scientific publications of the

group of W. Meier. In this letter the Appellant did not discuss the Board's provisional opinion and stated in the last paragraph of page 1:

> "In response to the provisional opinion, I request permission to introduce a number of textbooks into the proceedings, and with this letter I am submitting a number of extracts therefrom. I am also submitting a number of literature documents which, as a body, belong to the common general knowledge of the skilled person....I will discuss these documents during the Oral Proceedings".

Moreover, it announced (see the top of page 2):

> "I also expect to refer to the following case law during the Oral Proceedings:
> T0766/91;
> T0051/87;
> T0772/98; and
> T1117/14".

VIII. With a communication of the Board's Registry dated 1 June 2017, the Appellant was informed inter alia that, since these additional nine documents had not been accompanied with any indication of which specific arguments were allegedly supported by these citations and of the passages in these latter providing such support, the Board had severe concerns as to the admissibility into the proceedings of the late filed documents.

IX. The Appellant replied with letter of 7 June 2017 stating *inter alia* (see from the second paragraph on page 1 to the second paragraph on page 2):

> "Regarding the late filing of documents, ... It was only following the Communication from the Board dated 28 April 2017, and received in the Representative's office on 3 May 2017, that it became desirable for the first time to file additional documents to deal with the Board's opinion that the prior art documents on file did not constitute common general knowledge. Under the circumstances, it is submitted that the late filing of common general knowledge documents was justified, and the Board is requested to use its discretion under Art. 13(1) RPBA to allow the newly-filed documents into the proceedings.
>
> At the Oral Proceedings, I hope to refer to the textbooks submitted .... to show that the skilled person at the date of the Application would have had sufficient knowledge of block copolymers to have carried out the present invention without undue experimentation. If this argument is successful, then the question of whether or not literature documents and patent specifications can form part of the common general knowledge becomes moot.
>
> If this argument is not successful, then I propose to rely on the case law included in my recent submissions to argue that in certain circumstances literature documents and patent specifications can form part of the common general knowledge. The recently filed literature documents are all part of a body of work originating from the research group

of Wolfgang Meier. Several documents arising from this group are already on the file of the present Application (D1, D7, D8, D9, D10), and the purpose of submitting additional documents is to emphasise the point that at the date of the present Application there was a significant volume of published work available from this group."

In view of the wording used by the Appellant in this last paragraph, herein below the disclosure of D1 (which is a scientific review mainly focused on the research work of the group of W. Meier), of D7 to D9 (which are the scientific articles disclosing research work of this group) and of D10 (patent application of which W. Meier is one of the inventors) is cumulatively referred to as **Meier's work**.

X. At the oral proceedings the Appellant requested that the decision be based on the submissions presented in writing.

XI. The Appellant **requested** that the decision under appeal be set aside and that a patent be granted on the basis of the claims of the Main Request or, in the alternative, on the basis of the claims of the First Auxiliary Request, or the claims of the Second Auxiliary Request, or the claims of the Third Auxiliary Request, all requests as filed with the statement of grounds of appeal.

XII. The Appellant's (written) submissions of relevance for the present decision can be resumed as follows.

At section "3. Art.83 EPC: Sufficiency" of the statement of grounds of appeal the Appellant rejected the reasoning given in the portion of the decision

under appeal identified under IV, *supra* (i.e. the reasoning that the skilled person trying to reproduce the invention would inevitably need to start a research work and, in particular, "would need to search first the appropriate composition of the solution with the starting components and decide, first of all, in which form the membrane should be..") by stating (see the last paragraph on page 2 of the statement of grounds of appeal):

> "Of course the skilled man needs to take all of the [searches and] decisions mentioned above, but all of these are well within his normal skills. The present invention is based on the realisation — nowhere disclosed or suggested in the prior art, see section 4 below - that two different proteins which act in concert to create electricity from light can be embedded in a block copolymer matrix and thus form the basis of a solar cell. The exact details of how this is done are not important, and while obviously the skilled man would need to carry out some work in order to produce an actual, practicable, working solar cell, this would not amount to an undue burden. Once the inventive step has been taken, there is absolutely no problem in making a working membrane using known membrane technology, with only reasonable trial and error, and without undue burden".

On page 3, line 10 ff., of the statement the Appellant argues further as follows:

> "The essential elements of the invention are (i) two different cell membrane proteins which act in concert to create electricity from light, and (ii) a block copolymer matrix simulating a natural

> biological membrane and natural protein environment. ...
>
> (ii) Regarding block copolymers, these are very well known, and the skilled man would easily be able, as stated in the present Application (para. 4), to tailor their properties as required. Indeed, one of the advantages of the present invention, is that a wide range of block copolymers may be used, having properties required for particular circumstances.
>
> Not only are block copolymers themselves very well known, their use in membranes is also known. Of the prior art cited, all of D1, D7, D8, D9 and D1O relate to block copolymer membranes and D1O (WO 01/32146) in particular contains a very large amount of information on triblock copolymers, the invention of D10 being a novel use of known copolymers. The skilled man reading the present Specification would have been aware of all of this information, both from D10 and from other sources, and would have been able to apply it to the present invention without difficulty".

Section "3." ends with the sentence:

> "In summary, the Applicants submit that the Decision of the Examining Division is incorrect, and that the present specification meets the requirements of Art. 83 EPC".

In section "5. Auxiliary Requests" on page 8 of the statement of grounds of appeal, the Appellant - after having, *inter alia*, stressed the differences between the claim 1 of the Main Request and the versions of

claim 1 of the First to Third Auxiliary Requests - states (in the last paragraph on page 8):

> "All of the above submissions apply to the Auxiliary Requests as well as to the Main Request, but the scope of the claims is of course narrower and therefore a lower level of support is required to ensure sufficiency under Art. 83...".

The sole further submissions of the Appellant directly or indirectly relating to the question as to how to form the block copolymer matrix of the biomimetic membrane of the invention, are the passages in the Appellant's letters of 19 May 2017 and of 7 June 2017 cited under VII and IX, *supra*.

Reasons for the Decision

Procedural issues

1. Non-admittance of the nine documents filed with letter of 19 May 2017

1.1 The Appellant has filed nine additional citations with letter of 19 May 2017, i.e. few weeks before the scheduled date for the oral proceedings of 30 June 2017. Hence, the admittance of these additional documents is subject to the discretion of the Board foreseen under Article 114(2) EPC and in accordance with Article 13(1) and (3) RPBA.

1.2 The Appellant had been informed (by the Board's Registry with a communication of 1 June 2017, see VIII, *supra*) of the Board's concerns as to the admissibility into the appeal proceedings of the nine documents

additionally filed with letter of 19 May 2017, because this letter (accompanying the additional citations) gave no indication of which specific arguments were allegedly supported by these additional documents and of the passages in these latter providing such support.

1.3 The Appellant replied with letter of 7 June 2017 (see IX, *supra*) which, however, neither identified specific passages of any of these additional citations nor presented in any details the arguments that these copies of textbooks and scientific articles aimed at supporting. Indeed, such letter only contain the generic indications:

- that some of these additional citations had been filed "to show that the skilled person at the date of the Application would have had sufficient knowledge of block copolymers to have carried out the present invention without undue experimentation" (see IX, *supra*), and
- that the other additional citations had been filed to "emphasise the point that at the date of the present Application there was a significant volume of published work available from" the research group of W. Meier (see again IX, *supra*).

1.4 The Board holds that the above generic indications do not allow to identify which new lines of argument these additional citations should support.

1.5 The Board considers appropriate to incidentally stress that the fact that the research of the group of W. Meier resulted in a number of other scientific publications different from those already on file is already self-evident from the disclosure of D1 itself (which manifestly and undisputedly is a review of the body of research work made by the group of W. Meier,

see e.g. the at least 7 citations having W. Meier as author in the list of references at the end of D1).

1.6 It is also stressed that at the oral proceedings the Appellant only requested the Board to consider the Appellant's submissions in writing and, thus, provided no further clarification of these generic indications.

1.7 Hence, the Board, in the exercise of its discretion under Article 114(2), EPC and in accordance with Article 13(1) and (3) RPBA sees no reason for admitting into the appeal proceedings the additional nine documents filed with letter of 19 May 2017.

Main Request

2. Lack of sufficient disclosure (Article 83 EPC): claim 1

2.1 The Board notes preliminarily the following:

2.1.1 One of the reason for the finding in the decision under appeal that an undue amount of research work would be necessary for carrying out the claimed invention, is that this would require "to search first the appropriate composition of the solution with the starting components and decide, first of all, in which form the membrane should be" (see also IV, *supra*).

2.1.2 Claim 1 (full text under III, *supra*) is indeed directed to a biomimetic membrane comprising a block copolymer matrix having two different cell membrane proteins incorporated therein "*which act in concert to create electricity from light*". It is apparent to the skilled reader of this claim that the proteins incorporated in the membrane have to be in a functional state (this latter wording is used e.g. in paragraph [004] of the

application's description). It is thus also apparent to the skilled reader of claim 1, wherein the matrix of block copolymers is required to be "*simulating natural biological membrane and natural protein environment*", that the (implicitly) required functional state of the two cell membrane proteins depends, *inter alia*, on the nature of the block copolymer matrix, i.e. that the matrix of block copolymer is functionally defined so as to include only matrices of block copolymers that are able of "*simulating a natural biological membrane and protein environment*" to the extent required at incorporating the two cell membrane proteins in a functional state. This construction of claim 1 is not only in line with the whole content of the description of the application, but is also the same underlying the submissions of the Appellant (see XII, *supra*).

2.1.3 As also indicated in the Board's communication of 28 April 2017 (see VI, *supra*), the only teachings in the whole application as filed as to the chemical structure and the form of the block copolymer matrix are those given in respect of block copolymer matrices made of tri-block copolymers with two hydrophilic outer blocks and a hydrophobic inner block.

Indeed, as indicated in point 5.3.1 of this communication:

> "5.3.1 ... [The present application] specifies that the block copolymers can be "*tri-block copolymers having general properties of hydrophilic outer blocks and hydrophobic inner blocks*" (see [004] and [0037])"

2.2 Hence, the Board concludes that it is of particular relevance for the compliance with the requirement of

sufficiency of disclosure of the membrane of claim 1 at issue, whether or not the skilled reader of the application as filed is able to prepare without an undue amount of research work membranes made of a tri-block copolymer matrix in which membrane proteins (such as the BR or COX) can be incorporated in a functional state.

2.3 The Appellant in the statement of grounds of appeal (see XII, *supra*) argued in essence that the preparation of such a matrix made of tri-block copolymers would be within the normal skills of the skilled person, only requiring some limited trial and error optimization experiments, since the tri-block copolymers and their use in membranes would be "well-known". As evidence of this common general knowledge the Appellant referred to the Meier's work.

2.4 However, this reasoning is found not convincing for the reasons already indicated in the following passages in point 5.7 to 5.9.2 of the Board's communication of 28 April 2017:

> "5.7 The Board notes that (already) before the Examining Division the Applicant has implicitly alleged the existence of common general knowledge (herein below the **alleged common general knowledge**) e.g. by stating that it would be "well-known" to the person skilled in the art how to select the optimal block copolymer (see the second paragraph on page 5 of the decision under appeal).
>
> ....
>
> 5.7.1 However, the Board could find on file **no** evidence of the alleged common general knowledge.

Indeed, as correctly stressed by Examining Division, "According to the established jurisprudence of the Boards of Appeal, common general knowledge is represented by basic handbooks and textbooks on the subject in question, it does not normally include patent literature and scientific articles" (see the fourth paragraph on page 5 of the reasons in the decision under appeal). Hence, none of the documents filed before the Examining Division appears evidence of common general knowledge.

5.8 The Board finds therefore preliminarily correct the finding of the Examining Division ... that even when aiming at prepare embodiments of the claimed membrane for which the application as filed provide more details - i.e. embodiments comprising BR/COX as protein pair and a tri-block copolymer matrix - substantial research work is needed.

Indeed, in the Board's preliminary opinion to arrive at the presently claimed membrane the skilled person can only start from [0061] and then at least needs to:

(i) Identify among the (e.g. commercial or easily synthesizable) tri-block copolymers, one containing:
- the outer blocks that are remarkably hydrophilic (i.e. about as hydrophilic as the hydrophilic part of the phospholipid bilayer present in the biological membranes in which BR/COX are present in nature),

- the inner block that is remarkably hydrophobic [and]
- no group potentially aggressive toward BR/COX.

(ii) Identify which processing steps and which MW of each of the polymer blocks allow to form such tri-block copolymer into membrane-shaped matrices that
- have an overall thickness comparable to those of a biological membrane,
- whose inner layer is made of the hydrophobic blocks of the tri-block copolymer, whereas the hydrophilic blocks of this latter form the two external layers of the matrix,
- wherein the ratio among the dimensions of the hydrophilic and the hydrophobic domains resembles that present in (the phospholipid bilayer of) a biological membrane, and
- that is obtained in such a form that both faces of the matrix remain or can be rendered accessible to the passage of electricity....

5.9 The Board notes that in the statement of grounds of appeal (see the last paragraph on page 2) the Appellant appears to argue that to carry out the steps necessary at preparing the membrane of claim 1 at issue ... would be "within the normal skills" of the skilled person.

5.9.1 The Board finds this argument just another way of alleging again the existence of substantially the same common general knowledge

already alleged by the Appellant before the Examining Division.

The Board stresses again that also the documents D1 and D7 to D10 cited in the lower half of page 3 of the statement of grounds of appeal are no handbook or manual, but rather the publications of specific technical informations in scientific research articles or patents. Hence, none of them may be considered evidence of the alleged common general knowledge.

5.9.2 In case the Appellant would imply instead with its line of reasoning that the skilled person, aiming at reproducing the invention, would have searched for and found any of D1 or D7 to D10, the Board whishes to stress that such skilled person finds in the application no reason to even just expect the existence of some prior art in which block copolymers had already been used to generate biomimetic membranes....

On the contrary, even the disclosure in [004] (already cited above, which is part of the section entitled "*Summary of the invention*" and starts with the wording "*The block copolymers of the invention can be designed and created so that*...") contains no pointer to the possibility that block copolymers had already been used in the prior art to generate biomimetic membranes".

2.5 The Appellant has presented no counter argument to these reasons. Indeed, in the letters of 19 May 2017 and 7 June 2017 (see VII and IX, *supra*) appears to at most announce future (oral) complete submissions, that were then not presented at the oral proceedings.

2.5.1 In particular, no reasoned counter argument can be considered expressed by the mere statement in the letter of 7 June 2017 that the Appellant at the oral proceedings hoped "to refer", *inter alia*, to certain textbooks (those additionally submitted with letter of 19 May 2017 and not admitted by the Board) "to show that the skilled person ...would have had sufficient knowledge of block copolymers" (see IX, *supra*).

2.5.2 Nor is any such counter argument contained in the further statement (see again IX, *supra*) in which the Appellant proposed "to rely on the case law included in my recent submissions" (i.e. presumably the list of decisions of the Boards given in the passage of the letter of 19 May 2017 also reported in VII, *supra*) "to argue that in certain circumstances literature documents and patent specifications can form part of the common general knowledge", without specifying the cited "certain circumstances". In this respect, the Board stresses again that, as already indicated in the above-cited passages at 5.9.1 and 5.9.2 of the Board's communication of 24 April 2017, in the present case there are at least two very specific "circumstances" contributing to the finding of the Board that Meier's work has not been proved to be part of the common general knowledge, i.e.:

- that the relevant disclosure in D1 and D7 to D10 relates to "specific technical information" (as to the use of tri-block copolymers as made or proposed by exclusively the research group of W. Meier) and
- that the patent application in suit does not contain even an indirect pointer to the fact that tri-block copolymers might have already been used in the prior art to make biomimetic membranes (not to mention any pointer to the specific use of tri-

block copolymers made or proposed by the research group of W. Meier).

2.6 The Board sees therefore no reason to depart from the conclusion preliminarily expressed at point 5.10 of the communication of 24 April 2017:

> "5.10 If only for the above reasons, the Board comes to the preliminary conclusion that the skilled person reading the whole disclosure in the application as filed and aiming at preparing the embodiments of the claimed membrane for which the application as filed provide more details - i.e. embodiments comprising BR/COX as protein pair and a tri-block copolymer matrix- can only reasonably attempt to gain the necessary but lacking information by carrying out the extensive research work partially summerized at point 5.8 above. Hence, an undue amount of research work appears required for carrying out embodiments of the subject-matter of claim 1 of the Main Request and, thus, this latter appears not to comply with Article 83 EPC."

2.7 Accordingly, the Board finds that the Main Request cannot be allowed.

First to Third Auxiliary Requests

3. As already indicated at point 6 of the communication of the Board of 24 April 2017:

> "6. The membranes comprising BR/COX as protein pair and a tri-block copolymer matrix are also the embodiments of the membrane defined in each version of claim 1 according to the three Auxiliary

Requests for which the application as filed provide more details [see III, above, for the amendments with respect to the Main Request]. Hence, to carry out the subject-matter of claim 1 of any of the Auxiliary Requests 1 to 3 still requires substantially the same undue amount of research work that, as discussed above, is required for carrying out the subject-matter of claim 1 of the Main Request".

3.1 In the absence of reasoned counter-arguments thereto (see 5.2, above) the Board has no reason to depart from its preliminary opinion. Therefore, the First to Third Auxiliary Requests do not comply with the requirements of Article 83 EPC.

3.2 Hence, all the Appellant's Auxiliary Requests are not allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

D. Magliano L. Li Voti

Decision electronically authenticated