

Internal distribution code:

- (A) [-] Publication in OJ
(B) [-] To Chairmen and Members
(C) [-] To Chairmen
(D) [X] No distribution

**Datasheet for the decision
of 6 August 2014**

Case Number: T 1595/11 - 3.3.06

Application Number: 96905136.6

Publication Number: 0814897

IPC: B01D71/36, B01D61/42

Language of the proceedings: EN

Title of invention:
COMPOSITE MEMBRANE

Patent Proprietor:
W.L. GORE & ASSOCIATES, INC.

Opponents:
01) Heirs of Mr Böhm, Thomas
02) Solvay Specialty Polymers Italy S.p.A.

Headword:
Composite membrane/ Gore & associates

Relevant legal provisions:
EPC Art. 111(1), 114(2), 123(2), 128(4)
EPC R. 144(d)
RPBA Art. 13(3)

Keyword:
Identity of opponent changed pursuant to statutory succession
Amendment to appellant's case - admitted (yes)
Amendments - added subject-matter (no)
Remittal to the department of first instance - (yes)

Decisions cited:

G 0001/93, T 1269/06, T 0384/91

Catchword:



**Beschwerdekammern
Boards of Appeal
Chambres de recours**

European Patent Office
D-80298 MUNICH
GERMANY
Tel. +49 (0) 89 2399-0
Fax +49 (0) 89 2399-4465

Case Number: T 1595/11 - 3.3.06

**D E C I S I O N
of Technical Board of Appeal 3.3.06
of 6 August 2014**

Appellant: W.L. GORE & ASSOCIATES, INC.
(Patent Proprietor) 551 Paper Mill Road,
P.O. Box 9206
Newark,
Delaware 19714-9206 (US)

Representative: Shanks, Andrew
Marks & Clerk LLP
Aurora
120 Bothwell Street
Glasgow G2 7JS (GB)

Respondent: Heirs of Mr Böhm, Thomas
(Opponent 1) Klosterbogen 57
82061 Neuried (DE)

Representative: Schön, Christoph
Dr. Schön, Neymeyr & Partner mbB
Bavariaring 26
80336 München (DE)

Respondent: Solvay Specialty Polymers Italy S.p.A.
(Opponent 2) Via Lombardia, 20
20021 Bollate (MI) (IT)

Representative: Vande Gucht, Anne
Solvay S.A.
Département de la Propriété Industrielle
Rue de Ransbeek, 310
1120 Bruxelles (BE)

Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 6 June 2011
revoking European patent No. 0814897 pursuant to
Article 101(3) (b) EPC.**

Composition of the Board:

Chairman B. Czech
Members: G. Santavicca
 U. Lokys

Summary of Facts and Submissions

I. The appeal by the Patent Proprietor lies from the decision of the opposition division revoking European patent No. 0 814 897.

II. Claim 1 as granted reads as follows (additions to and deletions from claim 1 of the application as filed, published under the PCT as WO 96/28242 A1, being made apparent by the Board):

*"1. An **ultra-thin** composite membrane comprising (a) an expanded polytetrafluoroethylene membrane having a porous microstructure of polymeric fibrils **and a total thickness of ≤ 0.020 mm (≤ 0.8 mils)**; and (b) an ion exchange material impregnated throughout the membrane, the impregnated expanded polytetrafluoroethylene membrane having a Gurley number of greater than 10,000 seconds, wherein the ion exchange material substantially impregnates the membrane ~~so as~~ to render an interior volume of the membrane substantially occlusive."*

III. The patent in suit had been opposed in its entirety on the grounds of (Article 100(a), (b) and (c) EPC 1973).

In the decision under appeal, the Opposition Division found that the respective claims 1 according to the then pending Main request (claims 1 as granted) and First and Second auxiliary requests of the Patent Proprietor (filed during the oral proceedings held on 6 May 2011) were all objectionable under Article 123(2) EPC. In particular, the Opposition Division found that:

a) It was not in dispute that the expression "*ultra-thin*", present in Claim 1 as granted, was not contained in the application as filed.

- b) The expression "*ultra-thin composite membrane*" encompassed an impregnated base membrane having a thickness of 0.020 mm and comprising additional layers as long as the overall thickness of the composite membrane was "*ultra-thin*". So the qualifier "*ultra-thin*" had technical character.
- c) The thickness value of 0.020 mm referred to in Claim 1 as granted was only disclosed in the application as filed as applying specifically to expanded polytetrafluoroethylene (ePTFE hereinafter) membranes having fibrils with nodes, whilst the application as filed disclosed a different range of thicknesses for ePTFE membranes having only fibrils and no nodes, which were, however, also encompassed by Claim 1.
- d) Thus, the patent as granted contained subject-matter extending beyond the content of the application as filed (Article 123(2) EPC).

IV. With its statement setting out the grounds of appeal, the Patent Proprietor/Appellant *inter alia* submitted an amended set of amended Claims 1 to 9 and an amended description page 14 as its new Main Request.

Claim 1 according to the new Main Request was amended to read (amendments to Claim 1 as granted (see point II *supra*) are made apparent by Board):

"1. An *ultra-thin composite membrane* comprising (a) an expanded polytetrafluoroethylene membrane having a porous microstructure of polymeric fibrils and a total thickness of **between 1.52 μm (0.06 mils) and ≤ 0.020 mm (≤ 0.8 mils); and ...**".

Claim 5 according to the new Main Request corresponds to Claim 8 as granted and reads (amendments to claim 8 as granted being made apparent by the Board):

"5. The ultra-thin composite membrane of claim 1, wherein the total thickness of the expanded polytetrafluoroethylene membrane is **between 0.0127 mm (0.50 mils) and 0.0190 mm (0.75 mils)**".

Claim 6 corresponds to granted Claim 22 and reads (amendments to claim 22 as granted being made apparent by the Board)

"6. The ultra-thin composite membrane of claim 1, wherein said expanded polytetrafluoroethylene membrane has a porosity of ~~at least~~ **between 70% and 95%**."

Said newly filed amended description Page 14 differs from Page 14 of the patent as granted only in that Examples 21 and 23 (page 14) are designated as being "not according to the invention".

- V. In their respective replies to the statement setting out the grounds of appeal, Respondent 01 (Opponent 01) and Respondent 02 (Opponent 02) *inter alia* raised objections under Article 123(2) EPC against the respective Claims 1 of all of the requests filed by the Appellant.
- VI. On 7 July 2014, the Board was informed in writing that Mr Thomas Böhm had passed away and that opposition proceedings would be continued by the widow his legal successor (his wife Ms Sonja Böhm). In response to a communication of the Board, further evidence in this respect was submitted.
- VII. Oral proceedings were held before the Board on 6 August 2014.

Regarding the identity of Respondent 01, the Board informed the parties of its intention to include the corresponding further documents submitted into the non-public part of the file. Prompted by the Board in this respect, the other parties did not provide any comments.

The debate focussed on the compliance of claim 1 (Main Request) with the requirements of Article 123(2) EPC.

The Appellant amended its Main Request by reverting to page 14 as granted. The Respondents raised objections against the lateness of this amendment.

VIII. The Appellant (Patent Proprietor) requested that the decision under appeal be set aside and the patent be maintained on the basis of the claims according to the Main Request filed with the statement setting out the grounds of appeal or, in the alternative, on the basis of one of the First to Fifteenth Auxiliary Requests filed with the same letter.

The Respondents (Opponents 01 and 02) requested that the appeal be dismissed.

IX. The Appellant's arguments of relevance here can be summarised as follows:

Admissibility of the Main Request at issue

a) The Main Request was clearly admissible.

Amendment to Appellant's case

b) The arguments presented during the oral proceedings before the Board were consistent with

the arguments presented during the oral proceedings before the Opposition Division, as was apparent from the first full paragraph on Page 2 of the minutes of the oral proceedings held on 6 June 2011. The EPC permitted the presentation of a new line of arguments. Hence, the arguments in question were admissible.

Amendments

- c) Claims 1, 5 and 6 objected to by the Respondents were fairly based on the application as filed.

- d) The expression "*ultra-thin*" did not appear in the application as filed and was apparently erroneously taken from the first priority document and introduced into Claim 1. Hence, a term not originally disclosed had been inserted by error into Claim 1. This appeared to be due to the fact that the application as filed, for the first time, consistently dealt with "*thinner*" membranes (reference was made on pages 9, lines 20-23, and 15, lines 2-7 and 9-11), and taught that it was possible to prepare composite ePTFE membranes being thinner than the hitherto known membranes, the thickness of which might be comparable to the thickness of the base material. So that there was ample support for a general teaching on thinner membranes. Although it was not generally disclosed that the thickness of the composite membrane was the same as that of the base material, there was one example illustrating this, whereby other examples dealt with composite membrane which had been reinforced, or comprised a multiplicity of layers. Thus, the skilled person would derive from the application as filed that composite membranes

having a thickness which was comparable to that of the base material was an example of the invention, which the applicant might be willing to protect. In any case, the term "*ultra-thin*" did not give an unwarranted advantage to the Patent Proprietors, nor added subject-matter to the application as filed, for the following reasons:

The term "*ultra-thin*" was not required in order to distinguish from D12 (US patent No. 3,692,569), as argued by the Respondents, as the same differences over D12 existed regardless of whether the term "*ultra-thin*" was present, namely D12 did not relate to an ePTFE membrane having a thickness in the range as specified in Claim 1. There was no basis in the application as filed for interpreting "*ultra-thin*" to mean "less than 3 mils" as argued by the Respondents on the basis of D12.

The expression "*ultra-thin*", included as a useful term of descriptive nature in examination proceedings, was a relative term, imposing no clear dimensional limitation. However, lack of clarity was not a ground of opposition. The lack of clarity was in particular apparent from the different meanings given by the two Respondents to "*ultra-thin*". As this unclear label was not linked to any new and relevant technical information, nor to any particular effect, its inclusion in Claim 1 did not provide unwarranted advantages (T 1269/06 of 20 September 2007 was referred to in this instance).

Summing up, the expression "*ultra-thin*" had no well-known, or particular, meaning in the art, and was so vague that it could not give any

unwarranted advantage to the Appellant, thus did not add subject-matter.

- e) The objected expression "*total thickness*" too had been erroneously carried over from the first priority document, as it did not appear in the application as filed. In the context of Claim 1, and of the application as filed, the total thickness could not be understood to mean anything else other than the thickness of the ePTFE base material. Thus, its introduction in Claim 1 did not add subject-matter either.

- f) The finding in the decision under appeal according to which there was no basis in the application as filed for the thickness range defined in Claim 1 at issue, apart for ePTFE with fibrils and nodes was wrong for the following reasons:

- g) The key teaching of the application as filed (page 5, lines 9-14, was referred to) was that the base material might be made in numerous forms, whereby a preferred base material was ePTFE, which might be made according to the U.S. Patent mentioned in the quoted passage on page 5, and which preferably had a thickness as claimed. Thus, the thickness defined in Claim 1 was only a preferred range, not necessarily linked to the disclosure of said U.S. Patent, nor to any particular manufacture or microstructure.

The mention of this range in Claim 1 at issue was not an intermediate generalization of the ranges disclosed in the application as filed for microstructures with nodes and fibrils (page 5, line 12) or with fibrils only (page 6, line 16), as the now defined range was disclosed as such for

structures with nodes and fibrils and fell within the range for microstructures with only fibrils. In the application as filed (page 5, line 12 was referred to), the lower thickness was indicated as 0.06 mils, which was followed by the value 0.19 μm in parentheses. Thus, it was immediately apparent that the important dimension was 0.06 mils, as the dimension in brackets was a conversion. Since that conversion (0.19 μm) amounted to 0.0075 mils, which was immediately apparent as not feasible to the skilled person, it was clearly an error. This was also apparent from Figure 3 of the application as filed, in which the dark area represented the pores, which mentioned a scale of 4 μm . Therefore, the skilled person would immediately gather that the mils values were to be considered primarily.

Since the range defined in Claim 1 was based on page 5 of the application as filed and also fell within the range disclosed on page 6, line 16 of the application as filed, dealing with membranes with fibrils and no nodes, no added subject-matter was defined by amended Claim 1 according to the Main Request.

The reinstatement of Page 14 as granted, in which Examples 21 and 23 were according to the invention, did not add subject-matter, as the contents of Page 14 as granted was fairly based on the corresponding passages of the application as filed.

Finally, as regards the objections against the thickness and porosity ranges defined in Claims 5 and 6 of the Main Request, the arguments given for the range of Claim 1 likewise applied. As a case

in point, the thickness and porosity ranges of Claims 5 and 6 were not disclosed, in the application as originally filed, as applying only to microstructures with nodes and fibrils, nor linked to a method of manufacture according to the quoted U.S. patent, as argued by the Respondents. This was apparent from the expression "*may be made*", which did not mean "have to be made".

- X. The Respondents' arguments of relevance here can be summarised as follows:

Admissibility of the new Main Request

- a) According to Page 14 (as granted) to be considered (again) in connection with the claims according to the Main Request, the examples which the Appellant previously regarded as not being embodiments of the invention defined in Claim 1 at issue were now (again) considered to fall within the terms of Claim 1 at issue. Since changing the Main Request (description page 14) amounted to changing the facts, the new Main Request should not be admitted into the proceedings.

Amendment to Appellant's case

- b) Three years after the filing of the appeal, the Appellant presented for the first time a new line of arguments in order to justify the allowability of the amendments of claim 1 that were objected to. However, said new line of argument contradicted the previous one, the two lines thus being inconsistent. This was unacceptable, as it showed lack of good faith, and gave little chance

to the Respondents to comment on it. The new arguments should not be considered.

Amendments

- c) The expressions "*ultra-thin*" and "*total thickness*", as well as the specific range of 1.52 μm to 0.020 mm, now defined in Claim 1 at issue, had no basis in the application as filed and their incorporation amounted to an addition of subject-matter which was not allowable under Article 123(2) EPC.
- d) More particularly, the expression "*ultra-thin*" was not mentioned *verbatim* in the application as filed.

The three passages in the application as filed referred to by the Appellant consistently used only the term "*thinner*". Hence, these passages did not support the contested expression.

Whereas in its response on page 3 of the letter dated 26 July 2000 the then Applicant relied on the feature "*ultra-thin*" to invoke a number of distinguishing advantages over D12, thereby showing that this feature had indeed a technical character, the Appellant was now, instead, arguing that other features distinguished the claimed subject-matter from the cited prior art. This was, however, contradicted by the fact that the Main Request was previously accompanied by an amended description page 14, according to which Examples 22 and 23 were no longer according to the invention.

Hence, the feature "*ultra-thin*" definitely had a

technical meaning, relied upon until just before the oral proceedings, namely that the thickness of the impregnated membrane was comparable to that of the base material.

Therefore, there was an interaction among the features of Claim 1 at issue, which meant they implied a technical contribution (Decision T 0384/91, OJ 1995, 745, was referred to in this respect).

Neither the expression "*total thickness*" nor the specific range of thicknesses for such a "*total thickness*" as defined in Claim 1 at issue had a basis in the application as filed, let alone on page 5, line 12, which only mentioned "*thickness*".

The arguments submitted to justify the position that the contested terms "*ultra-thin*" and "*total thickness*" had been inserted by error were not convincing, as the EPC provided strict rules for representation. Thus, the representative had the responsibility to ensure consistency with patent practice throughout the proceedings.

According to T 1269/06 (*supra*), in assessing whether the subject matter of the patent extends beyond the content of the application as filed, the key question was whether the amendments made indeed provided the skilled person with additional, technically relevant information which was not contained in the application as filed.

This question, in the case at issue, was to be answered in the affirmative, as the limitations under scrutiny were associated to the technical

significance (invoked till the date of the oral proceedings before the Board) that the membrane had a thickness which was comparable to that of the base material. Furthermore, as submitted during the examination proceedings, the feature "*ultra-thin*" distinguished the claimed membranes from the disclosure of D12, the lower thickness disclosed in D12 being 3 mils, i.e. implied a thickness lower than 3 mils, for which there was no basis in the application as filed. Also, the term "*total thickness*", contrary to the term "*thickness*" referring only to the base material, i.e. to a thickness before impregnation, now encompassed the thickness of the final, impregnated membrane, i.e. after impregnation, for which there was no basis either in the application as filed. The numerical ranges for thickness disclosed in the application as filed only related to the base material.

As to the thickness range defined in Claim 1 at issue, it was not identical with the ranges respectively disclosed on page 5, lines 8-19, and on page 6, line 16, as these ranges constituted two alternatives, each having its own set of differing features. In particular, the thickness defined in Claim 1 was only associated to a first type of microstructure with nodes and fibrils. A broader range was disclosed for the microstructure comprising only fibrils. Although the range for the first microstructure fell within the range for the second microstructure, this fusion of ranges was not admissible, as e.g. the values 0.06 and 0.8 mils were not disclosed as being preferred also for the microstructure with fibrils only.

The basis for the specific lower limit of 1.52 μm of the thickness range defined in Claim 1 at issue was unclear, as the application as originally filed only disclosed values 0.06 mils and 0.19 μm . Although the fact that 0.06 mils did not correspond to 0.19 μm made apparent the presence of an error, two choices, hence no obvious solution, were available, the correct value being either 0.06 mils or 0.19 μm . Furthermore, the Appellant had not proven that a material having a thickness of only 0.19 μm was not feasible. Thus, it had been arbitrarily decided that 0.06 mils was the correct value. The argument that the mils value are the primary values was not convincing, as the skilled person was not necessarily a US practitioner. The objection of lack of basis similarly applied to the ranges of values defined in Claims 5 and 6.

Reasons for the Decision

Identity of Opponent 01/ Respondent 01 changed pursuant to statutory succession

1. Considering the evidence filed, including a certificate of inheritance, the Board is satisfied that the identity of Opponent 01/Respondent 01 has changed pursuant to statutory succession, and that Mr Schön is still the authorised representative.
2. According to the request of Mr Schön, the Board has decided to keep the further evidence filed in this respect, as well as the "Sterbeurkunde" (death certificate) filed earlier, in the non-public part of

the file, pursuant to Article 128(4) and Rule 144(d) EPC.

Amendment to Appellant's case

3. At the oral proceedings before the Board, the Appellant amended its argumentation submitted earlier in its statement setting out the grounds of appeal, in particular with respect to the question of what meaning was to be given to the expressions "*ultra-thin*" and "*total thickness*", and also with respect to the question of whether the thickness range defined in Claim 1 at issue applied only to a particular kind of membrane. Accordingly, the Appellant modified its Main Request to the extent that amended page 14 of the description was withdrawn.
- 3.1 This particular amendment to Appellant's case does not touch the claims of the Main Request, but merely the arguments concerning the proper meaning to be given to the claims at issue, and the thereby ensuing need for conformity between the claims and the description.
- 3.2 Although the Respondents at first appeared to be surprised by this change in the Appellant's argumentation, they nevertheless were in a position to react and deal with the new arguments, i.e. to present their case, without adjournment of the oral proceedings.
- 3.3 For the Board, the new arguments provided in support of the expressions "*ultra-thin*" and "*total thickness*" at the oral proceedings were not particularly surprising since although differing from the ones submitted in the statement setting out the grounds of appeal (see Points 1.1.1 and 1.1.2), they had already, at least for the

expression "*ultra-thin*", been addressed earlier before the Opposition Division (see page 2, first three full paragraphs, of the Minutes of the oral proceedings before the Opposition Division).

3.4 Moreover, oral proceedings are an opportunity for the parties to reconsider their arguments and thereby shed new light on relevant aspects of the issues to be decided, in the present case the proper interpretation of terms comprised in the granted claims which have no literal basis in the application as filed (*infra*). Consequently, the Board does not find that the Appellant's behaviour could be qualified as lacking good faith.

3.5 Under these circumstances, and considering also that the very late change in the argumentation of the Appellant did not amount to the presentation of a fresh case, the Board decided to admit and consider it (Article 114(2) EPC and Article 13(3) RPBA).

Admissibility of the Main Request at issue

4. According to its Main Request at issue, the Appellant is still asking for maintenance of the patent on the basis of the set of claims 1 to 9 filed with the statement setting out the grounds of appeal and labelled "MAIN REQUEST". However, it withdrew the amended description page 14 which formed part of the main request filed with the statement of grounds. In other words, the main request at issue does not include said amended description page 14.

4.1 The withdrawal of the amended description page 14 goes along with the change in the appellant's argumentation. For the board, this modification of the Appellant's

case is not so complex that it could not be dealt with by the Respondents or the Board during the oral proceedings without adjournment of the oral proceedings. The crucial question at issue, i.e. the allowability of the amended claims under Article 123(2) EPC, remained essentially the same. Finally, Page 14 as granted was part of the Main Request (patent as granted) decided upon in the decision under appeal.

4.2 Therefore, the Board decided to admit the Main Request so amended into the proceedings despite its late filing, (Articles 114(2) EPC and 13(3) RPBA).

Main Request - Allowability of the amendments

5. The issue to be decided is whether the subject-matter of the claims according to the Main Request at issue is directly and unambiguously derivable from the application as originally filed.

5.1 The Respondents had essentially objected that the inclusion of the following features into claim 1 was objectionable under Articles 100(c) / 123(2) EPC:

- (i) the expressions "*ultra-thin*" and "*total thickness*";
- (ii) the range "*between 1.52 μm (0.06 mils) and $\leq 0.020\text{ mm}$ ($\leq 0.8\text{ mils}$)*" as such; and,
- (iii) the specific lower limit "*1.52 μm (0.06 mils)*" of the said range, in Claim 1 at issue,

as, it added subject-matter to the content of the application as originally filed. They also objected against Claims 5 and 6 at issue (wording under IV *supra*) in view of the amended numerical ranges for the preferred thicknesses and porosities respectively defined therein.

- 5.2 In this connection the following questions arose:
- (i) whether the features "*ultra-thin*" and "*total thickness*" (already comprised in claim 1 as granted but undisclosed in the application as filed) make a technical contribution to the claimed subject-matter (G 1/93, OJ 1994, 541; T 384/91), and
 - (ii) whether the amended numerical thickness and porosity ranges now comprised in claim 1, 5 and 6 at issue (post-grant amendments) found basis in the application as filed.
6. Regarding question i) *supra*, the board observes that it is stated in G 1/93 (reasons point 9) that the underlying idea of Article 123(2) EPC 1973 was clearly that an Applicant should not be allowed to improve his position by adding subject-matter not disclosed in the in the application as filed , which would give him an unwarranted advantage and could be damaging to the legal security of third parties relying on the content of the original application.
- 6.1 Moreover, it was held in T 1269/06 (reasons point 2) that in the assessment of whether, contrary to Article 100(c) EPC 1973, the subject-matter of the patent extends beyond the content of the application as filed, a key question is whether or not the amendments made indeed provide the skilled person with additional, technically relevant information which was not contained in the original application documents.
- 6.2 As regards the expressions "*ultra-thin*" and "*total thickness*", it is not in dispute that they are not disclosed in the application as originally filed. It is, however, in dispute whether they provide additional

technically relevant information not contained in the application as filed.

- 6.3 Since the skilled person's understanding of these expressions lies at the heart of the issue under appeal, the board has to construe their proper meaning within the context of the patent in suit.
- 6.4 The expression "*ultra-thin*" has no generally recognised meaning in the art. This is not in dispute.
- 6.4.1 For the Board, considering the whole content of the patent in suit as it would be read by a skilled person in the light of common general knowledge, this expression is not suitable to impart any further limitation as regards the maximum thickness of the claimed composite membranes, neither in absolute terms nor in relative terms (thinner than what?), considering that the patent contains no general or specific reference point(s) in this respect.

This is apparent, in particular, from the following parts of the patent in suit (corresponding parts of the application as filed in between brackets) which are of interest in this connection:

- 6.4.2 The "background of the invention" in paragraphs [0006] and [0007] (paragraph bridging pages 1 and 2 of the application as filed; page 2, first full paragraph), where it is merely acknowledged that there is a need for increased strength of on exchange membranes (IEM), which implies thickness and/or reinforcement without, however, giving any dimensional value.
- 6.4.3 The problem addressed by the invention (paragraph [0013]) (page 3, second full paragraph), i.e. the

existing need for strong, integral composite ion exchange membranes having long term chemical and mechanical stability.

- 6.4.4 The detailed description of the invention, which:
- either deals with the thickness of the base material, i.e. of the non-impregnated membrane in paragraphs [0024], the sentence bridging pages 3 and 4, and [0025], page 4 line 30 (page 5, lines 8-14; page 6, line 16),
 - or with the method of preparation in paragraph [0034] (page 8, lines 16 to 38), according to which "*additional solution applications steps, and subsequent drying, may be repeated until the membrane becomes completely transparent*", whereby the "*actual number of treatments is dependent on the ... thickness of the membrane*",
 - and comprises expressions such as (emphasis added by the Board) "*the composite membrane can be made **thinner** than a fabric or a non-woven reinforced structure*" in paragraph [0037] (page 9, lines 20-23), which are not suitable to disclose any (absolute/relative) thickness limitation.
- 6.4.5 The test procedures described in paragraph [0040] (page 10, lines 15-24), according to which the thickness of the base material (non impregnated membrane) and of the dried composite membrane (impregnated membrane) was to be determined with a particular snap gauge.
- 6.4.6 The background of the examples set out in paragraphs [0060] to [0064] (page 14, line 30, to page 15, line 32), according to which (emphasis added):
- "*Due to higher conductance of this membrane feasible with **thinner** membranes, an electrolysis unit could*

employ less membrane for a given flux rate", see paragraph [0061], lines 38-39 (page 15, lines 2-4).

*- "A fuel cell, utilizing the membrane of the present invention, operates at a higher voltage for a given current density due to the improved ionic conductance of **thinner versions** of the membrane of this invention".*

- "As used herein, NAFION 117 means a membrane having a thickness of 7 mils".

- "All samples of ePTFE provided in the following examples were made in accordance with the teaching of U.S. Patent No. 3,593,566. More particularly, the ePTFE had the following material properties: ...":

TYPE 1 has a nominal thickness of 0.75 mils, TYPE 2 has a nominal thickness of 0.5 mils as apparent from paragraphs [0066] and [0069] (page 16, line 30, to page 17, line 11; Example 1; Example 3).

6.4.7 Example 1, according to which *"The thickness of the dried composite membrane was measured and found to be approximately the same thickness as the base material"* (a TYPE 1 ePTFE), see paragraph [0066], last sentence (sentence joining pages 16 and 17).

6.4.8 Example 2, according to which a TYPE 1 ePTFE base material was placed on a netting of polypropylene, see paragraph [0067] (page 17, lines 5-8). This was also done in Examples 7, 11, 15,

6.4.9 Example 3, according to which a TYPE 2 ePTFE base material was impregnated, dried and then boiled in distilled water to cause the membrane to **swell**. A boiling step was also present in Examples 4, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16,

6.4.10 Example 17, in which a ePTFE membrane was heat sealed at a centre location of a thermoplastic frame.

- 6.4.11 Example 18, in which a web-like membrane having a porous microstructure composed substantially of fibrils in which no nodes were present was made from fine powder of TEFLON®.
- 6.4.12 Example 21, in which two ePTFE membranes were impregnated and then combined by heat and pressure.
- 6.4.13 A combination of two ePTFE membranes was also done in Example 23, according to which "*a thicker integral composite membrane was thus formed*".
- 6.4.14 Comparative samples were made of NAFION 117, a perfluorosulfonic acid cation exchange membrane, unreinforced film of 1100 equivalent weight commercially available from E.I. Dupont de Nemours Co., Inc., having a quoted nominal thickness of 7 mils (0.18 mm), whereby the samples, originally in the hydrated swollen state were measured in the x- and y-directions and weighed, see paragraph [0093]) (page 27, lines 12-16).
- 6.4.15 From the foregoing analysis of the patent in suit , the Board gathers the following :
- (a) The patent only mentions the **nominal** thickness of **base** material made of an ePTFE;
 - (b) It is indicated that the comparative membrane NAFION 117 has a quoted nominal thickness of 7 mils (0.18 mm).
 - (c) No numerical upper limits for the total thickness of the composite (impregnated and/or reinforced) membrane are mentioned.
 - (d) It is not generally indicated how much thinner than NAFION 117, or than fabric or non-woven

reinforced structure, the claimed composite membranes should be.

- (e) Apart from Example 1, the claimed composite membranes do not necessarily have a thickness which is approximately the same as the thickness of the base material.
- (f) Since the composite membranes described in the patent may be reinforced, or may be combined (e.g. two impregnated bases materials, as in Examples 21 and 23), or may be swollen, their thickness may well be thicker than (i.e. not comparable to) the nominal thickness of the base material.

6.4.16 In summary, for the Board, the qualifier "*ultra-thin*", which according to claim 1 relates to the thickness of the composite membrane, does not imply that the composite membrane claimed defined must have a (total) thickness which is the same or closely similar to the thickness of the base material as defined in phrase (a) of claim 1, as was held by the respondents. In other words, although a composite membrane having a thickness which is approximately the same as the nominal thickness of the base material falls without any doubt within the terms of encompassed by Claim 1 at issue, this does not mean, however, that all composite membranes falling within the terms of this claim must have a thickness similar to that of the base material used in their preparation.

6.5 As concerns the meaning of the expression "*total thickness*", which according to the wording of claim 1 (part (a)) relates to the ePTFE (base) membrane, it is not apparent from the whole patent in suit that some further information, besides an indication of the thickness of said ePTFE membrane, is conveyed by the the qualifier "*total*". More particularly, the patent in

suit contains no element which could support a different understanding of the "*total thickness*" referred to in claim 1.

6.5.1 In the patent in suit, as in claim 1, quantitative indications regarding membrane thickness are only given in respect of the base material, either as "*thickness*" values (paragraph [0024], sentence bridging pages 3 and 4; paragraph [0025], line 30) (e.g. page 5, lines 12-14; page 6, lines 16), or as "*nominal thickness*" values (e.g. Example 1). There are instances in the patent in suit where reference is made to the thickness of composite membranes without, however, any indication of numeric values regarding their "*total thickness*". More particularly, the application as filed discloses that "*the final composite membrane ... has a uniform thickness*" (page 7, lines 15 - 16) and that whilst "*the thickness of the dried composite membrane*" was measured with the particular snap gauge mentioned on page 10, lines 15-24, the thickness of the swollen composite membranes was not measurable this way.

6.5.2 Hence, the view of the respondents that the expression "*total thickness*" as used in claim 1 could be understood to refer to the thickness of the final composite membrane is neither supported by the wording of claim nor by some other part of the patent in suit.

6.6 It follows from the above, that the indication "*ultra-thin*", even when read in combination with the indications concerning the "*total thickness*" of the ePTFE (base) membrane, does not impart any further limitation on the thickness of the final composite membrane defined in Claim 1 at issue. Hence, the incorporation of the expressions "*ultra-thin*" and "*total thickness*" into claim 1 did not provide any new

interaction, between themselves or with the other features defined in Claim 1, let alone the alleged interaction implying that the total thickness referred to was that of the finished composite membrane, which was necessarily comparable to that of the base material, so that "*ultra-thin*" meant a range of thicknesses as defined in Claim 1 at issue, which would add subject-matter. On the contrary, based on its interpretation of the expressions "*ultra-thin*" and "*total*" in the context of Claim 1 (*supra*), the Board concludes, that their presence in claim 1 makes no technical contribution to the claimed subject-matter and does not provide the skilled person with some specific additional, technically relevant information. Accordingly, the feature "*ultra-thin*" as such cannot be invoked as providing a (further) distinction between the disclosure of document D12 and the claimed subject-matter.

7. As a matter of fact, the Board cannot gather any subject-matter which is not derivable from the whole content of the application as filed (which does not contain the expressions "*ultra-thin*" and "*total thickness*"), and to which Claim 1 at issue could be considered to be directed in view of the added expressions "*ultra-thin*" and "*total thickness*".
 - 7.1 Hence, it is not apparent what technically relevant information has been added by the insertion of the expressions "*ultra-thin*" and "*total thickness*", apart from wording which is, for the Board, meaningless in the context of claim 1 at issue.
 - 7.2 Questioned by the Board in this respect during the oral proceedings, the Respondents could not explain what particular subject-matter, if any, had actually been

added, compared to the disclosure of the application as filed, by means of the inserted expressions "*ultra-thin*" and "*total thickness*", let alone illustrate an embodiment which would be excluded by a wording of Claim 1 not comprising these expressions but which would represent subject-matter defined by the wording of Claim 1 at issue. Their only argument was the invoked assumption, based on their interpretation of Claim 1, that the composite membranes should have a thickness comparable to that of the base material from which they were made, as defined in Claim 1 at issue.

- 7.3 The board concludes that the presence of the features "*ultra-thin*", relating to the composite membrane, and "*total thickness*", concerning the ePTFE base membrane, is not objectionable under Articles 100(c) EPC.
8. It remains to decide (see question ii) under point 5.2 *supra*) whether membranes with all the combined features of Claims 1, 5 and 6, respectively, and, more particularly the **thickness ranges** defined in Claims 1 and 5 at issue, and the **porosity range** defined in Claim 6 at issue, irrespective of whether or not the ePTFE membrane material comprises nodes, are directly and unambiguously derivable from the application as filed.
- 8.1.1 In this respect, the crucial passages in the detailed description of the invention of the application as filed read as follows (emphasis added by the Board):
- (a) Page 5, lines 8-14: "*A preferred base material 4 is an expanded polytetrafluoroethylene (ePTFE) which **may be** made in accordance with the teachings of U.S. patent No. 3,593,566, incorporated herein by reference. Such a base material has a porosity of greater than 35%. **Preferably, the porosity is between 70-95%. Preferably the thickness is***

between 0.06 mils (0.19 μm) and 0.8 mils (0.02 mm), and most preferably the thickness is between 0.50 mils (0.013 mm) and 0.75 mils (0.019 mm). This material is commercially available in a variety of forms from W. L. Gore & Associates, Inc., of Elkton, MD, under the trademark GORE-TEX®. Figure 3 shows a photomicrograph of the internal porous microstructure of an embodiment of such an expanded PTFE membrane. As seen therein, the porous microstructure comprises nodes interconnected by fibrils which define an interior volume of the base material 4. Alternatively, the base material 4 may comprise an ePTFE material having a porous microstructure defined substantially of fibrils with no nodes present."

- (b) Page 5, line 22, to page 6, line 16: "To manufacture an ePTFE membrane having a porous microstructure defined substantially of fibrils with no nodes present, This ePTFE membrane is characterized by the following properties:
- (a)
 -
 - (f) a thickness between 1.32 μm and 25.4 μm ...".

8.1.2 It is firstly and immediately apparent that these passages contain a number of errors, namely:

- (a) As noted during oral proceedings, the quoted U.S. Patent number is erroneous since the patent with this publication number does not concern porous membranes.
- (b) Since a mil is a thousandth of an inch, and 1 inch equals 25.4 mm, 1 mil equals 25.4 μm . This means that either the conversion value of 0.06 mils is wrong, since its correct conversion gives a value of 1.52 μm , and not the value indicated in

brackets, i.e 0.19 μm . Or the value of 0.06 mils is wrong, since the correct conversion of the value in brackets (0.19 μm) would give 0,0075 mils.

8.1.3 The board assessment of the disclosure provided by these two quoted passages is as follows:

- (a) The base material need not necessarily be made according to the teachings of said U.S. patent, since "*may be made*" does not mean "has to be made".

The board thus accepts that the disclosure of the thickness range is on a more general level than the acknowledgement of the quoted U.S. patent.

- (b) Consequently, for the board, the thickness ranges defined on page 5, line 12-14, albeit mentioned in a context which acknowledges a particular U.S. patent, are neither inextricably linked to other features of the teaching of said U.S. patent, nor to membranes made of fibrils and nodes as shown in Figure 3.

- (c) Hence, the very first thickness range "*between 0.06 mils ... and 0.8 mils ...*" is the most general direct and unambiguous disclosure of the (nominal) thickness of suitable ePTFE base material.

For the board, irrespective of the presence of a conversion error, and from its evident solution, if any, the express mention of the value of 0.06 constitutes also a direct and unambiguous disclosure of the corresponding converted value of

1.52 μm .

- e) Hence, the objection under Article 123(2) EPC raised by the respondents against the value of 1.52 μm is not convincing.

- (d) Consequently, also the ranges between 0.06 mils and 0.8 mils, and between 0.5 mils and 0.75 mils, and the corresponding ranges obtained by converting the mils values into μm , i.e. the ranges between 1.52 μm and 0.02 mm, and between 0.0127 mm and 0.0190 mm, find direct and unambiguous basis in the application as filed.

- (e) The same conclusion can analogously be drawn regarding the preferred range for the porosity of between 70 and 95% disclosed on page 5, line 11, of the application as filed, this range neither being inextricably linked to the manufacturing method according to the mentioned U.S. patent, nor to a ePTFE configuration with nodes and fibrils.

- (f) Purely for the sake of completeness, the board finds that if evident corrections to the conversion errors present in the application as filed were sought-for, all items of information which may be considered point to the conclusion that the numerical values given in mils are the correct ones, for the following reasons:
 - (i) The application was filed by an Applicant from the USA;
 - (ii) Throughout the application as filed, the first unit mentioned for the thickness is always the mil;
 - (iii) On page 5, lines 12-14, of the application as filed, apart from the first conversion,

the other three conversions appear to be correct;

(iv) The sizes of the pores shown in Figures 3 to 5, taken at magnifications of 2.5, 5.1 and 20 kx, respectively 4, 1.96 and 0.50 μm , appear to be (much) bigger than the magnitude of the converted thickness for 0.06 mils (i.e. 0.19 μm) as given on page 5, line 12, and definitely more in line with the converted thickness values for the other mil values illustrated.

- 8.1.4 It follows from the foregoing analysis that membranes with all the features of Claims 1, 5 and 6, including the claimed thickness ranges for the ePTFE membrane as defined in Claims 1 and 5 at issue and the porosity range defined in Claim 6 at issue, are directly and unambiguously derivable from the application as filed.
9. The board is also satisfied that the other dependent claims according to the main requests are not objectionable under Article 123(2) EPC either, since they find basis in the application as filed. This was not in dispute
- 9.1 Except for the back-references, dependent Claims 2 to 4 at issue are identical to Claims 2 to 4 as granted and find basis in *inter alia* claims 2 and 3 of the application as filed.
- 9.2 Except for the back-references, dependent Claims 7 to 9 at issue are identical to Claims 26 to 28 as granted and find basis in *inter alia* claims 4, 5 and 7 of the application as filed.

10. Therefore, in the Board's judgment, the claims according to the Main Request fulfil the requirements of Article 123(2) EPC.

Remittal

11. Since the opposition division found that patent as granted and as amended according to the then pending requests was objectionable under Article 100(c) and 123(2) EPC, the other pending objections of the adverse parties were not dealt with at the first instance oral proceedings.

Hence, the Board considers it expedient to remit the case back to the department of first instance for further prosecution pursuant to Article 111(1) EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the Opposition Division for further prosecution on the basis of the claims according to the main request filed with the statement setting out the grounds of appeal, description and figures as granted.

The Registrar:

The Chairman:



D. Magliano

B. Czech

Decision electronically authenticated