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Datasheet for the decision of 30 January 2014

Case Number: T 0249/11 - 3.3.05

Application Number: 03757346.6

Publication Number: 1518287

IPC: H01M6/16

Language of the proceedings: EN

Title of invention:
NONAQUEOUS ELECTROCHEMICAL CELL WITH IMPROVED ENERGY DENSITY

Patent Proprietor:
EVEREADY BATTERY COMPANY, INC.

Opponents:
Koninklijke Philips N.V.
The Gillette Company
Spectrum Brands, Inc.

Headword:

Relevant legal provisions:
EPC R. 99(1)(c), 99(2)
EPC Art. 108, 123(2), 84, 54, 111
RPBA Art. 12(4), 13(1), 13(3)

Keyword:
"Admissibility of the appeal (yes)-notice of appeal contains a request defining the subject of the appeal"
"Added subject-matter (main request): yes"
"Auxiliary request filed during oral proceedings (admitted)"
"Clarity (auxiliary request): yes"
Remittal to the department of first instance (yes)"

Decisions cited:
G 0002/88, T 0026/85, T 0305/87, T 0464/94, T 0358/08, T 0023/10

Catchword:

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Case Number: T 0249/11 - 3.3.05

D E C I S I O N
of Technical Board of Appeal 3.3.05
of 30 January 2014

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Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted on 22 November 2010 revoking European patent No. 1518287 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman: G. Raths
Members: G. Glod
P. Guntz

Summary of Facts and Submissions

I. The present appeal lies from the decision of the opposition division dated 7 October 2010 to revoke European patent EP-B1-1 518 287.

II. During the opposition proceedings the documents cited included the following:

E1a: EP-A-0 930 664
E2: JP-A-56 79859
E4: US 4 764 437
E12: US 4 450 214
E14: US 4 952 330
E28: Drawing of a cell according to Example 2 of the patent in suit

III. The opposition division considered that claim 1 of the main and first auxiliary requests lacked novelty with respect to document E1a. According to the opposition division it was implicit in E1a that the variable "anode to cathode input ratio" or A/C capacity ratio was calculated using the formula in claim 1 of the patent (or an equivalent formula) because it was the usual way in the art to calculate the parameter.

The second auxiliary request was not admitted into the proceedings under Article 114(2) EPC, since the opposition division was of the opinion that its admittance would have protracted the proceedings and the parties could not be expected to familiarise themselves in the time available with the proposed amendments. In addition documents E4 to E11 were not admitted into the proceedings.

IV. The patent proprietor's (hereinafter: the appellant) notice of appeal and the grounds of appeal were received on 28 January 2011 and 31 March 2011, respectively.

V. On 29 April 2011 opponent 1 (hereinafter respondent 1) filed a first reply questioning the admissibility of the appeal.

VI. By letter of 8 August 2011, respondent 1 submitted further arguments in reply to the grounds of appeal.

VII. The reply of opponent 2 (hereinafter respondent 2) to the grounds of appeal was received on 8 August 2011.

VIII. By telefax of 16 August 2011, opponent 3 (hereinafter respondent 3) filed its reply to the grounds of appeal.

IX. Summonses to oral proceedings for 30 January 2014 were sent on 19 June 2013. In the communication under Article 15(1) of the Rules of Procedure of the Boards of Appeal (RPBA), the Board expressed the opinion that the appeal was admissible, that it was expedient to deal with the ground for opposition under Article 100(c) EPC prior to the question of novelty and that only document E1a would be considered for the question of novelty.

X. Oral proceedings were held on 30 January 2014. During the oral proceedings, objections under Article 123(2) EPC concerning the main request submitted with the letter of 30 October 2013 were extensively discussed. The admission of auxiliary request 1, and clarity and novelty of claim 1 of this request with respect to document E1a were also debated. The respondents did not bring forward further arguments with respect to the

admissibility of the appeal. In addition, no objections under Article 123 EPC were raised for the auxiliary request.

XI. The **appellant**'s arguments during the written procedure and during oral proceedings which are relevant to the present decision can be summarised as follows:

Article 123(2) EPC

It was unambiguously derivable from the application as originally filed that the anode could be a lithium metallic foil (page 2, lines 26 and 27 and page 3, line 6). It was not essential that the lithium metal was a lithium-aluminum alloy, as was apparent from the wording "may be" used in the original application (see page 3, lines 6 to 7).

Claim 2 of the original application had to be read as meaning that 0% of aluminum could be present, which meant that aluminum could also be completely absent so that metallic lithium anode did not have to be alloyed with aluminum. Therefore the aluminum amount given in original claims 2 to 4 did not have to relate to an alloy of lithium with aluminum. The same argument held true for the void volume given in original claims 5 and 6 and the bent anode in original claim 18.

Admissibility of the auxiliary request

It would be unfair not to admit the auxiliary request, since it was a reaction to the objections under Article 100(c)/123(2) EPC, which had not been discussed during oral proceedings at first instance. The amendment made was very easy to understand since claims 1 and 2 as granted had been combined.

Article 84 EPC.

The term "foil" was generally known in the art, as was obvious from the numerous prior art documents, including E1a, that used this term. It could be clearly distinguished from other structures such as discs or pellets. It was a well-recognised technical term and neither the electrodes in E3 nor the electrodes in E8 could be considered as foils. In addition, metallic foils such as aluminum foils that bend easily were known to everybody. The term was, therefore, clear.

Article 54 EPC

E1a calculated the A/C ratio based on all the active materials. In contrast, the A/C ratio of the patent in suit was based on the anode capacity and cathode capacity present only in a defined interfacial area where the anode and cathode overlap. This meant that certain portions of the anode or cathode were excluded from the A/C ratio calculation. Forming the ratio on the basis of the total amount of the electrodes was significantly different from an approach taking into account only the interfacial area.

According to E1a, the cathode material was rolled, spread, or pressed on a current collector material ([0022] and example 1 of D1a). It was unknown whether the entire area of the current collector or just part of it was "coated". "Jellyroll" was just indicated as one possible structure and the exact configuration was not known.

Ela disclosed specific A/C ratio and swelling considerations only in respect of silver-vanadium oxide

cathode systems.

There was no explicit disclosure in E1a of an electrochemical cell comprising a lithium metallic foil anode alloyed with aluminium and a metallic cathode having a coating, comprising iron disulfide and having a jellyroll structure. Several choices would have to be made in the description to arrive at such a cell. Even if these choices, which could not be considered as unambiguous were made, it was still not unambiguous that the A/C ratio calculated according to the method of claim 1 was less than or equal to 1.0. Therefore, the subject-matter of claim 1 of the first auxiliary request was not directly and unambiguously derivable from E1a.

XII. **Respondent 1**'s arguments during the written procedure and during oral proceedings which are relevant to the present decision can be summarised as follows:

Admissibility of the appeal

The appeal was not admissible since the notice of appeal only contained the request to set the impugned decision aside and the statement of grounds only contained the requests to remit the case to the first instance and, as an auxiliary measure, to hold oral proceedings. Both requests were procedural requests and left open which version of the patent the appellant intended to defend.

The appellant's request did not comply with the requirements of Rule 99 EPC, since a request to remit the case to the first instance was not a request which defined the boundaries of what was to be examined during appeal proceedings. Rule 99(2) EPC could not be

construed such that the patent proprietor was completely released from specifying to what extent the decision at issue was to be amended, and thus in what form the patent at issue was supposed to be maintained. The appellant's submissions as a whole did not lead to a request that defined the patent proprietor's intention to maintain the patent, either in its granted form or in an amended form as requested, as an auxiliary measure, in first instance.

Article 123(2) EPC

Claim 1 of the original application disclosed a metallic anode alloyed with aluminum. The omission of the feature "alloyed with aluminum" was not allowable since it did not pass the essentiality test described in T 331/87. Original claims 2 to 5 referred directly or indirectly to claim 1 so that it was unambiguous that the amount of aluminum had to be part of the alloy. This was not the case any more, since claims 3 to 5 of the main request referring to claim 1 no longer required the aluminum to be part of the alloy.

Admissibility of the auxiliary request

The auxiliary request should not be admitted into the proceedings as such a simple amendment could already have been filed before the opposition division, since the objections initially raised under Article 100(c) EPC had not changed. Therefore, it also came as a surprise. In addition, it raised *prima facie* issues under Article 84 EPC in view of the term "foil" so that it was not clearly allowable.

Article 84 EPC

The term "foil" was not clear since it was not known where the boundaries of that term were. The skilled reader would not know as of what thickness it ceased to be a foil.

Article 54 EPC

E1a disclosed a lithium aluminum alloy (page 3, line 21), a foil (page 3, line 23), iron disulfide (page 4, line 5) and an anode to capacity ratio from about 0.68 to 0.96 (claim 3). The patent (US 5458997) referred to in E1a showed that the cathode width was equal to the anode width so that the areas were completely overlapping. Therefore, it was evident that the A/C ratio was determined in E1a by only considering the overlapping area of cathode and anode. It was not credible, in view of E1a and the document US 5458997, that the cathode and anode had a non-overlapping area of 50%, which was necessary to be outside the claimed range.

XIII. **Respondent 2**'s arguments during the written procedure and during oral proceedings which are relevant to the present decision can be summarised as follows:

Article 123(2) EPC

Original claims 5 and 6 referred directly or indirectly to claim 1 so that it was unambiguous that the specific range of void volume of the cathode coating was only disclosed in combination with a metallic lithium anode alloyed with aluminum. This was not the case any more, since claims 6 and 7 of the main request referring

directly or indirectly to claim 1 no longer required a metallic lithium anode alloyed with aluminum. The same was true for the subject-matter of claims 19 and 23.

Admissibility of the auxiliary request

The proprietor had had ample time to submit amended claims since the objections were already known. The presumption that the claims were considered allowable under Article 123(2) EPC by the opposition division was without any basis, since there was no reason not to allow the opposition division to decide first on Article 100(a) EPC. The amendments raised new issues which the parties could not be expected to deal with so that according to Article 13(3) RPBA, the amendments could not be admitted.

Article 84 EPC:

A foil was not a generally accepted term in the art. The skilled person would not know whether the electrodes shown in E3 and E8 could be regarded as a foil or not, especially since E3 also used the word "foil" (see column 13, line 39).

Article 54 EPC

If the desired advantages described in E1a (paragraph [0031]) were to be achieved with an interfacial A/C ratio greater than 1, a portion of the cathode material outside the interfacial area had to be consumed during discharge. Since E1a did not address and did not rely on the consumption of cathode material outside the interfacial area, it was implicit that E1a, when referring to the A/C ratio, meant the interfacial A/C

ratio. To achieve the desired effect, the cathode and the anode had to have similar sizes.

What mattered for the calculation of the A/C ratio was the mass of lithium in relation to the mass of iron disulphide. The mass did not become different merely because it was calculated according to a different formula or analysis.

The energy density of lithium and the energy density of iron disulphide were the same in the lithium/iron disulphide cell of E1a as they were in the lithium/iron disulphide cell of the patent in suit.

Claim 26 of E1a disclosed an anode to capacity ratio of 0.68 to 0.96 and referred to previous claims 1 to 25 so that this range was at least implicitly disclosed for different cathode and anode materials. In a jellyroll configuration it would never happen that over 50% of the cathode and anode did not overlap.

XIV. **Respondent 3**'s arguments during the written procedure and during oral proceedings which are relevant to the present decision can be summarised as follows:

Article 123(2) EPC

A jellyroll configuration without lithium alloyed with aluminum was nowhere disclosed in the original application.

Admissibility of the auxiliary request

The amendment made in the auxiliary request considerably changed the scope of the claim and should therefore not be admitted into the proceedings.

Article 84 EPC

The term "foil" was completely unclear since the skilled person would not know whether button batteries were considered as batteries containing a foil or not. The scope of claim 1 was therefore not clearly defined.

Article 54 EPC

The value of 0.68 disclosed in claim 26 permeated the whole disclosure of E1a, so that each variant encompassed by E1a was to be read in combination with 0.68. All the possible anode materials given in paragraph [0014] of E1a, all the cathode materials given in paragraph [0020] of E1a and all the configurations given in paragraph [0022] of E1a would be seriously contemplated by the skilled person so that each combination was a possible variant disclosed in E1a.

Only the interfacial electrode width had to be taken into consideration for the calculation of the A/C ratio according to claim 1 of the patent in suit and it was not credible that in a jellyroll configuration, the width of the cathode was 50% larger than the width of the anode. The implementation of the teaching of E1a would inevitably lead to a cell according to claim 1.

The actual dimensions of the electrodes in a jellyroll design were shown in E28, from which it could be seen that there was little difference between the interfacial area and the total area of the cathode.

The skilled person could unambiguously derive that, in hypothetical constructions (that is, those where the

facing area of the cathode was much bigger than that of the anode), the A/C ratio must relate to the material in the measurable working area of the cell, which was the overlapping or interfacial region of the electrodes. Otherwise, the desired anode limited discharge behaviour, which was the whole object of E1a, could not be ensured. This was also reflected in the wording of step (d) of method claim 26 of E1a, which would be understood to mean that the ratio related to the material in the interfacial working region of the cell which was the active material in the operation of the cell.

XV. Wording of claims

The only independent claim of the **main request** reads as follows:

"*1. An electrochemical cell comprising a nonaqueous electrolyte, an anode and a cathode assembly, the electrolyte comprising a solvent, the cathode assembly comprising a metallic cathode current collector having two major surfaces and a cathode coating disposed on at least one of the two major surfaces, the coating comprising iron disulfide, and the anode being a lithium metallic foil anode, wherein the anode to cathode input ratio is less than or equal to 1.0, wherein the anode to cathode input ratio is determined as follows:*
anode to cathode input ratio = anode capacity per 2.54 cm [linear inch]/cathode capacity per 2.54 cm [linear inch]
wherein the anode capacity per 2.54 cm [linear inch] = (foil thickness) x (interfacial electrode width) x (2.54 cm) [1 linear inch] x (density of lithium foil at 20 °C) x (lithium energy density, 3861.7 mAh/g) and

the cathode capacity per 2.54 cm [linear inch] = (final cathode coating thickness) x (interfacial electrode width) x (2.54 cm) [linear inch] x (cathode dry mix density) x (final cathode packing percentage) x (dry weight percent FeS_2) x (percent purity FeS_2) x (FeS_2 energy density, 893,58 mAh/g)."

Claim 1 of the **auxiliary request** includes claim 2 of the main request and specifies "*the anode being a lithium metallic foil anode alloyed with aluminum*".

XVI. Requests

The appellant (patent proprietor) requested that the decision under appeal be set aside and that the case be remitted to the department of first instance for further prosecution on the basis of the main request submitted on 30 October 2013 or, alternatively, on the basis of the auxiliary request submitted during the oral proceedings of 30 January 2014.

The respondents (opponents 1, 2 and 3) requested that the appeal be dismissed or, alternatively, that the auxiliary request should not be admitted into the proceedings or, alternatively, that the case be remitted to the department of first instance in order to deal with all the requirements of the EPC.

Reasons for the Decision

1. Admissibility of the appeal (Article 108 EPC)

1.1 According to Rule 99(1)(c) the notice of appeal shall contain a request defining the subject of the appeal.

Rule 99(2) reads as follows: "*In the statement of grounds of appeal the appellant shall indicate the reasons for setting aside the decision impugned, or the extent to which it is to be amended, and the facts and evidence on which the appeal is based.*"

1.2 In the present case, the appellant requested in its notice of appeal that the impugned decision be set aside. In the statement setting out the grounds of appeal, the appellant requested that the impugned decision be set aside and that the case be remitted back to the first instance for further prosecution, in particular, for the examination of inventive step on basis of the claims as granted.

1.3 A request to maintain a patent in a particular form is not a requirement of Rule 99(1)(c) EPC (see T 358/08, Reasons 5). For the purpose of this provision it is sufficient to state whether the decision is appealed in its entirety or to identify the order(s) within a decision that are appealed.

The requirements of Rule 99(1)(c) EPC are met since the appellant made it clear that the decision was appealed in its entirety. This was not contested further by respondent 1 (see letter of 23 October 2013, page 3, penultimate paragraph).

1.4 The requirements of Rule 99(2) EPC are also met since, in the present situation, the request made in the statement of grounds of appeal by the appellant is both concrete and unambiguous. The request indicates that the case should be remitted for further prosecution based on the claims as granted.

This can only mean that novelty of the patent in suit with respect to document E1a should be recognised by the board of appeal and the case sent back to the opposition division to deal with the other opposition grounds. Novelty with respect to E1a was the only question addressed in the decision under appeal so that it is clear that only this decision should be set aside.

Sufficient reasoning was given by the appellant as to why the decision was incorrect from its point of view.

This case is very similar to T 23/10, in which the appellant requested that the decision of the opposition division be set aside and the case remitted to the opposition division for consideration of other grounds for opposition. For the requirements of admissibility to be met, the appellant was under no obligation to deal with grounds for opposition other than the one considered and decided on by the opposition division (see T 23/10, Reasons 1.4).

1.5 In view of the above considerations, the appeal is admissible.

2. Main request

2.1 Admittance

The main request was only filed in reply to the communication of the Board pursuant to Article 15(1) RPBA. Since none of the respondents objected to its admittance, the Board sees no reason for not admitting it as the request is a clear reaction to the objection under Article 100(c) EPC raised by the Board.

2.2 Article 123(2) EPC

Claim 1 of the original application contained the feature "*a metallic lithium anode alloyed with aluminum*". All claims originally filed directly or indirectly referred to claim 1 so that all the features of said claims were linked to an anode alloyed with aluminum.

Claim 1 of the main request no longer contains the feature "*alloyed with aluminum*" for the anode. Said feature is only present in claim 2 of the main request.

It has to be decided whether the absence of this feature in claim 1 leads to subject-matter that is not directly and unambiguously derivable from the original application.

Claim 3 reads: "*A cell according to claim 1, wherein the metallic lithium comprises less than 1.0 percent by weight of aluminum*".

This means that the lithium metallic foil anode comprises aluminum, but no indication is given in which form this aluminum should be present, which implies that it can be present in any form. The metallic foil anode could, for example, be coated with aluminum particles.

Original claim 2 reads "*A cell according to claim 1, wherein the anode comprises less than 1.0 percent by weight of aluminum.*" This means that the metallic lithium anode alloyed with aluminum comprises less than 1 percent by weight of aluminum, which restricts the aluminum to a part of the alloy. In the context of the original claims, the aluminum was only disclosed as part of a lithium alloyed with aluminum and not as any other form.

Original claim 2 depends on original claim 1, which implies that it includes all the features of claim 1 including the lithium anode alloyed with aluminum. Claim 1 cannot be read in view of claim 2 such that the lithium anode alloyed with aluminum could be without aluminum, since such a reading would be contrary to Rule 43(1) EPC, which requires that claims define the matter for which protection is sought in terms of the technical features of the invention (see also G 2/88, Reasons 2.5). The alloy is presented as a technical feature of the invention in claim 1 and is not presented as an option. Original claim 2 has to be read in that context.

Therefore original claim 2 can only mean that the amount of aluminum given relates to the aluminum as part of the alloy.

The original description also discloses the amount of aluminum (see page 3, lines 7-10). In that context it is also without any doubt that the amount of aluminum only relates to the lithium-aluminum alloy and not to any different type of aluminum. It is specifically mentioned that the aluminum content of the lithium-aluminum alloy may be between 0.1 and 2.0 percent by weight (page 3, lines 7 and 8). The two following

sentences (page 3, lines 8 to 10) further specify the amount of aluminum, but it is unambiguous that this also relates to the content of the lithium-aluminum alloy, especially as the next sentence starts with "*Such an alloy*".

In the original application, the aluminum content given thus only relates to the lithium-aluminum alloy and not to any other type of lithium with aluminum.

Since this is not the case for current claim 3, which is dependent on claim 1, claim 3 encompasses subject-matter not directly and unambiguously derivable from the original application and is not acceptable under Article 123(2) EPC.

Therefore, the main request must fail.

3. Auxiliary request

3.1 Article 12(4) RPBA

This request was first submitted during the oral proceedings before the Board of Appeal. It is true that objections under Article 100(c) EPC were part of the grounds for opposition, but in its preliminary non-binding opinion, the opposition division was of the opinion that the objection under Article 100(c) EPC was not founded.

Therefore, during the oral proceedings before the opposition division the ground for opposition under Article 100(c) EPC was not discussed. Under these circumstances the appellant's requests presented before the opposition division can be considered as a normal reaction to the opposition proceedings and the Board

sees no reason why under these conditions requests trying to overcome the Article 100(c) EPC objection should no longer be allowed in appeal proceedings. In this case, it would be rather unfair not to allow such requests under the provisions of Article 12(4) RPBA, especially as the opposition division took a somewhat unusual approach during the oral proceedings and discussed Article 100(a) EPC prior to Article 100(c) EPC.

3.2 Article 13(1) and (3) RPBA

In its communication under Article 15(1) RPBA, the Board indicated that it deemed it expedient to discuss the objections under Article 100(c) EPC prior to the question of novelty. In reaction to this, the proprietor submitted a new main request, the admission of which was not objected to by the respondents.

It is true that part of the objections raised under Article 123(2) EPC with respect to this new main request were previously brought forward by the respondents. However, during the oral proceedings before the Board several lines of arguments were developed that had not yet been part of the appeal proceedings. It would be unfair to accept on the one hand these new lines of arguments and on the other hand not to give the appellant the possibility to react with a new request.

When considering this request, it is without any doubt that the request is easy to understand since it is a simple combination of original claims 1 and 2 so that no complexity arises therefrom. Moreover, this request does not raise any new issues that have not been present for the main request. Such an amendment could

not come as a surprise and could easily be dealt with without adjourning the oral proceedings. In addition it can be easily recognized that the request overcomes the objections under Article 123(2).

The Board cannot agree that this request completely shifts the case in an unforeseeable direction and creates a "new" case, since it is a simple limitation in the direction of the preferred embodiment shown in example 1. Since it is a limitation and is in line with example 1 of the patent in suit, the Board cannot see why large amounts of relevant prior art would all of a sudden become relevant. One could have expected the respondents' searches to cover at least the preferred embodiment disclosed in the patent.

In any case, the respondents still have the possibility to submit new prior art before the opposition division. It will be within the opposition division's discretion to admit it or not into the proceedings under Article 114(2) EPC.

Since the request is a reaction to the discussion during the oral proceedings, is easy to understand and does not raise any new issues that would protract the proceedings, the Board admits the auxiliary request into the proceedings.

3.3 Article 123(2) and (3) EPC

The Board is satisfied that the requirements of Article 123(2) and (3) EPC are met. The respondents did not present any different view in that respect.

3.4 Article 84 EPC

The question that needs to be answered is whether the term "foil" is clear to the person skilled in the art.

It is the Board's understanding that the term "foil" has a well-established meaning in the art, since it is cited in numerous prior art documents.

Thus, the term "foil" is for instance found in E1a, which indicates that the anode is either a thin metal sheet or a foil (see page 3, line 23). Also, in the passage cited in E3 by respondent 2, foil and sheet are cited next to each other. According to these passages foil and sheet have different meanings since otherwise they would not both be cited.

A foil is understood by the skilled person as a very thin sheet of metal that can be bent easily and pulled into pieces. An example is aluminum foil. If this is not possible, the skilled person would use the expression "sheet". This distinction seems also in line with the description (paragraph [0005]), which states that a lithium foil has a relatively low tensile strength and as a result can undergo stretching and thinning. Thicker lithium foils are also indicated in that passage, but it is the board's view that a thick foil that does not bend while being moved in the air can no longer be considered a foil, but is a sheet.

The Board concludes that the requirements of Article 84 EPC are met.

3.5 Article 54 EPC

3.5.1 The only point that was decided by the opposition division was the question of novelty with respect to document E1a. No decision was taken on novelty with

respect to other documents cited against novelty by the opponents (e.g. E2, E12, E14, E20 and E21). This manner of proceeding now appears to have been inefficient with respect to the overall procedure.

3.5.2 The only question that needs to be answered is whether the subject-matter of the only independent claim 1 is directly and unambiguously derivable from document E1a.

E1a discloses an electrochemical cell comprising a nonaqueous electrolyte (page 4, line 35) such as a nonaqueous solvent (page 4, line 41).

The cathode may be prepared by rolling, spreading or pressing the cathode active mixture onto a suitable current collector (page 4, lines 17-18), which in the view of the Board leads to a coating on said current collector. The cathodes may be in the form of one or more plates operatively associated with at least one or more plates of anode material, or in the form of a strip wound with a corresponding strip of anode material in a structure similar to a "jellyroll" (page 4, lines 21 to 23).

The preferred anode comprises lithium and an alternate anode comprises a lithium alloy such as lithium-aluminum alloy (page 3, line 21). The anode is preferably a thin metal sheet or foil (page 3, line 23). The preferred cathode material is silver-vanadium oxide (see paragraphs [0018] and [0019] and example I). Possible additional cathode active materials are given in a list that includes iron disulfide (page 4, lines 4-6).

The electrochemical anode to cathode capacity ratio is from about 0.68 to about 0.96 (see claim 3).

As is apparent from the numerous passages cited, there is no disclosure in E1a that combines all the features of claim 1. Therefore it needs to be established whether E1a suggests the combination of features present in claim 1 of the present request (T 305/87, Reasons 5.3).

All the electrochemical cells used in the examples of E1a were lithium/silver-vanadium oxide cells for which the lower limit of the anode to cathode capacity ratio was calculated to be 0.68 (see page 7, line 23). There is no indication in E1a that the calculation made for these types of cell also applies to a cell having a different cathode. Claims 3 and 26 of E1a discloses the range of about 0.68 to about 0.96, but not in combination with a specific individualized electrochemical cell. This is confirmed by the wording of claim 26, which describes a method of providing an electrochemical cell wherein in each step a material has to be chosen (e.g. a casing, an anode, a cathode). What the exact range of A/C ratio will be for a specific combination has not been disclosed, but it is only disclosed that it will be within the range of about 0.68 to about 0.96.

E1a teaches several possible ways of providing electrochemical cells having an A/C ratio falling within the range of 0.68 to 0.96. It will be up to the skilled person to choose the preferred combination and to determine the corresponding acceptable A/C ratio within the ratio of 0.68 to 0.96.

It seems unambiguous that the skilled person would choose lithium as the anode material, since there is a clear suggestion of this in E1a. All electrochemical

cells according to the examples contain lithium as an anode and lithium is the preferred material. Then, the skilled person would have to choose the form and type of the anode (foil or metal sheet; alloy or not). There does not seem to be a suggestion of a specific choice in E1a. In the examples, the lithium anode material is pressed onto a nickel current collector screen. In addition, many cathode materials are given, the preferred ones being vanadium oxide materials that are used in the examples. But other options are possible, as indicated above. The Board concludes that the combination of features present in claim 1 of the patent in suit can only be obtained if specific choices are made for which there is no direct suggestion in E1a.

E1a does not disclose different variants next to each other. Such variants first have to be established by making specific choices for which there is no clear suggestion in E1a.

The concept of "seriously contemplating" does not apply here, since this concept dealt originally with overlapping ranges of a certain parameter (T 26/85, Reasons 9). This is rather different from the present case in which it needs to be decided whether a certain combination of features is directly and unambiguously derivable from the original application.

3.5.3 Even if it was assumed that all the features were directly and unambiguously derivable in combination, which they are not, it would still have to be decided whether the range of about 0.68 to about 0.96 disclosed in E1a inevitably includes values of lower than 1 when calculated according to the method given in claim 1 of the present request.

In E1a, the A/C ratio is calculated based on all the active materials (see page 1, lines 48 and 49 and page 6, lines 1 and 2), while the A/C ratio of the patent in suit was based on the anode capacity and cathode capacity present only in a defined interfacial area where the anode and cathode overlap.

The range of 0.68 to 0.96 recalculated using the formula according to the patent in suit could possibly overlap with the range "less than or equal to 1.0" present in claim 1 if the electrochemical cell according to E1a had a structure according to "jellyroll", which is given as a possible structure in E1a (page 4, lines 21 to 23) and for which it seems very likely that the area of non-overlapping electrodes is less than 50%. Furthermore, the range of 0.68 to 0.96 would also have to apply to a lithium/iron disulfide cell.

However, since the exact structure of the electrochemical cell of E1a is not known and since it is not unambiguous that the range of 0.68 to 0.96 also applies to a lithium/iron disulfide cell, it cannot be deduced for sure that the range given in E1a inevitably overlaps with the range present in claim 1 of the patent in suit. It may be highly likely that this is the case, but whether a document is prejudicial to novelty cannot be decided on the basis of probability (see T 464/94, Reasons 16).

So, even on the wrong assumption that an electrochemical cell comprising a lithium metallic foil anode alloyed with aluminum in combination with an iron disulfide cathode was unambiguously derivable from E1a, it could still not be unambiguously derived from E1a

that such a cell had an anode to cathode input ratio calculated according to the method present in claim 1 of less than or equal to 1.0.

3.5.4 The subject-matter of claim 1 is therefore not unambiguously derivable from E1a. E1a does not anticipate the novelty of the subject-matter of the claims according to the auxiliary request.

4. Remittal and further prosecution (Article 111 EPC)

The decision whether to remit a case to the department of first instance is at the board's discretion. This discretion is to be exercised based on the circumstances of the case. In the present case all parties requested a remittal and the Board sees no reason for doing differently.

Although the Board was already of the preliminary non-binding opinion, as stated in its communication under Article 15(1) RPBA, that only E1a was relevant to the question of novelty, and although claim 1 of the auxiliary request is limited with respect to claim 1 of the patent in suit, the Board still decided for reasons of fairness to deal only with novelty with respect to E1a. Since the auxiliary request was only submitted during oral proceedings before the Board, the Board deemed it fair to give the respondents the possibility to discuss the novelty of this request with respect to the other documents before the opposition division. The opposition division therefore has to decide on the question of novelty of the auxiliary request with respect to all documents that are part of the proceedings or are possibly taken into the proceedings under Article 114(2) EPC, except for document E1a. In addition, inventive step and sufficiency of disclosure

still need to be discussed and decided upon. It is of course at the discretion of the opposition division whether or not to admit further requests from the parties.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance for further prosecution of the claims of the auxiliary request filed during the oral proceedings before the Board.

The Registrar: The Chairman:

C. Vodz G. Raths

Decision electronically authenticated