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Datasheet for the decision of 26 June 2013

Case Number: T 1795/10 - 3.3.05

Application Number: 03029322.9

Publication Number: 1434288

IPC: H01M 4/02, H01M 4/52, C01D 1/02, H01M 10/40

Language of the proceedings: EN

Title of invention:
Active material for positive electrode for non-aqueous electrolyte secondary battery and method of manufacturing the same

Patent Proprietor:
TOYOTA JIDOSHA KABUSHIKI KAISHA

Opponent:
Dr Klusmann Peter

Headword:
Li-anode material/TOYOTA

Relevant legal provisions:
EPC Art. 54(1)(2), 83, 123(2)
EPC R. 80, 76(2)(a)

Keyword:
"Admissibility of the opposition (yes)"
"Disclosure of the invention (yes) - sufficiently clear and complete"
"Amendments (main request): allowable - no intermediate generalisation"
"Novelty (main request): yes - parameters not directly and unambiguously disclosed in prior art - reversal of the burden of proof (no)"

Decisions cited:
T 0954/93, T 0499/00, T 0131/03, T 1408/04

Catchword:
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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 1795/10 - 3.3.05

D E C I S I O N
of the Technical Board of Appeal 3.3.05
of 26 June 2013

Appellant: (Patent Proprietor)
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Decision under appeal:
Decision of the Opposition Division of the European Patent Office posted 11 June 2010 revoking European patent No. 1434288 pursuant to Article 101(3)(b) EPC.

Composition of the Board:

Chairman: G. Raths
Members: J.-M. Schwaller
P. Guntz

Summary of Facts and Submissions

I. The present appeal lies from the decision of the opposition division revoking European patent No. 1 434 288 on the grounds that the subject-matter of claim 1 of the main request (claims as granted) lacked novelty and that the subject-matter of the respective claims 1 of auxiliary requests 1 to 4 (dated 15 January 2010) extended beyond the content of the application as filed.

II. Among the documents cited in the first instance proceedings,

D1: US 6 207 325 B1

is of relevance to the present decision.

III. In its decision, the opposition division held the opposition admissible, since the opponent - Mr Peter Klusmann - was fully and unambiguously identified as regards his name, business address, nationality and capacity to act as a European patent attorney.

The opposition division further held that claim 1 as granted did not fulfil the requirements of Article 54(1) and (2) EPC, in the light of document D1 which disclosed the same manufacturing method as the contested patent, and so implicitly disclosed the claimed active material.

IV. With its statement of grounds of appeal dated 21 October 2010, the appellant (also patent proprietor) contested the opposition division's conclusions, and

filed two sets of amended claims as auxiliary requests 5 and 6.

V. With a letter dated 3 March 2011, the respondent (also opponent) submitted a set of observations contesting the appellant's substantiation of the appeal. It also submitted three new documents:

D6: JP 2002-289261 and its US counterpart US 2004/0053134 A1 (D6')

D7: JP 2002-42811

on the basis of which it contested the inventive step of the newly claimed subject-matter.

VI. On 18 November 2011, the appellant withdrew all its previous requests and filed seven sets of amended claims as a new main request and new auxiliary requests 1 to 6, with claim 1 of the main request reading as follows:

"*1. An active material for positive electrode for non-aqueous electrolyte secondary battery comprising a lithium-metal composite oxide represented by the general formula* $Li_x(Ni_{1-y}\ Co_y)_{1-z}M_zO_2$ *(*$0.98 \leqslant x \leqslant 1.10$*;* $0.05 \leqslant y \leqslant 0.4$*;* $0.01 \leqslant z \leqslant 0.2$*, in which M represents at least one element selected from the group consisting of Al, Mg, Mn, Ti, Fe, Cu, Zn and Ga), characterized in that the lithium-metal composite oxide is synthesized from lithium compounds, nickel compounds, cobalt compounds, and metallic element M compounds via a blending step, a firing step, a crushing step, a sieving step, and a classification step, the crushing step and the sieving*

step being conducted in a nitrogen atmosphere or in dehumidified air, and the classification step being conducted in dehumidified air, and
a C-amount of 0.14 wt-% or less is measured by way of the high-frequency heating-IR absorption method and
a Karl Fischer moisture content is 0.2 wt-% or less when heated to 180°C."

VII. On 3 April 2012, the respondent filed observations contesting the allowability of the newly claimed subject-matter. In particular, it held claim 1 of the main request to lack novelty in the light of document D1. It also cited in this respect the new document

D8: Holleman, Arnold F., Dr Nils Wiberg, Lehrbuch der Anorganischen Chemie/Holleman-Wiberg, 101st edition, Walter de Gruyter, 1995", page 1152.

VIII. At the oral proceedings, which took place on 26 June 2013, the respondent not only contested the novelty of claim 1 of the main request, it also contested said claim under Articles 83 and 123(2) EPC as well as under Rule 80 EPC.

IX. After closure of the debate, the board established the parties' requests as follows:

The appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis of one of the sets of claims filed on 18 November 2011.

The respondent requested that the appeal be dismissed.

Reasons for the Decision

1. *Admissibility of the opposition*

1.1 Mr Klusmann filed the opposition under the letter head of his firm and signed as patent attorney. The appellant claimed that it was to be assumed that Mr Klusmann was acting on behalf of an undisclosed client. The name of the opponent, however, was indispensable for a valid opposition.

The appellant further stressed that Mr Klusmann had failed to indicate his nationality and his place of residence, his place of business not being sufficient under Rules 76(2)(a) and 41(2)(c) EPC.

1.2 In decision G 0003/97, the Enlarged Board of Appeal stated:

"*An opposition is not inadmissible purely because the person named as opponent according to Rule 55(a) EPC [1973 = Rule 76(2)(a) EPC 2000] is acting on behalf of a third party. Such an opposition is, however, inadmissible if the involvement of the opponent is to be regarded as circumventing the law by abuse of process. […]. However, a circumvention of the law by abuse of process does not arise purely because:*

- *a professional representative is acting in his own name on behalf of a client;*
- *an opponent with either a residence or principal place of business in one of the EPC contracting states is acting on behalf of a third party who does not meet this requirement.*"

Thus, the mere fact that the opposition was filed by a patent attorney, even if he might be representing a third party, does not necessarily mean that there has been a circumvention of the law by abuse of process which might render the opposition inadmissible.

1.3 Following a failure to comply with Rules 76(2)(a) EPC and 41(2)(c) EPC, Rule 77(2) EPC gives the opposition division the authority to invite the opponent to remedy the deficiencies and - if the opponent fails to do so within a specified time period - to reject the opposition as inadmissible.

However, since the opposition division issued no such invitation there is no basis for holding the opposition inadmissible. Rule 77(1) EPC (rejection without invitation to remedy the deficiencies) applies only to non-compliance with the provisions of Article 99(1) or Rule 76(2)(c) EPC.

Therefore, even if there was a deficiency under Rule 76(2)(a) EPC regarding the opponent's identity (nationality and place of residence), this would not render the opposition inadmissible.

2. *Disclosure of the invention*

2.1 According to Articles 83 EPC and 100(b) EPC, an invention must be disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

2.2 The respondent alleged that the patent specification did not provide enough details for carrying out the

invention, in particular with respect to the control of the atmosphere during the manufacturing steps of the invention, for which some of the essential features were missing. It also argued that the patent in suit failed to provide sufficient guidance as to the preparation of lithium-composite oxides covering the whole scope of protection claimed.

2.3 The board cannot accept these arguments, because the respondent has not provided any evidence to support them. In particular, it has not reproduced any of the examples illustrating the invention. It has therefore failed to discharge its burden of proof.

2.4 In the board's view, the invention has been disclosed in sufficient detail, since the patent (see Examples 1 and 2) describes extensively the preparation of two specific lithium-composite oxides falling within the terms of the subject-matter defined in claim 1 at issue. Concerning the alleged lack of guidance as to how further lithium-composite oxides might be prepared to cover the whole scope of protection claimed, the board cannot agree. In paragraph [0027] the general formula for a lithium-metal composite oxide was given. Also, the average particle diameter, the C-amount and the Karl Fischer moisture content were given. Further, in paragraph [0044], it was stated that the specific C-amount and/or the specific Karl Fischer moisture content were obtained when controlling the atmosphere of the manufacturing step. Thus, starting from the two examples and following the details in paragraphs [0027] to [0044], it appears to be possible for the skilled person to prepare further compounds falling within the scope of protection of claim 1 at issue, e.g. by

varying the composition of the starting materials and the operating conditions proposed in said examples. Moreover, for this specific allegation the opponent again bears the burden of proof, but has not provided any evidence to support it.

2.5 Since the respondent has not been able to provide any evidence substantiating the alleged lack of guidance or to identify any gap of information, the board concludes that the requirements of Articles 83 EPC and 100 (b) EPC are met.

3. *Main request - Amendments*

3.1 Allowability of the amendments under Article 123(2) EPC

3.1.1 The board observes that the subject-matter of amended claim 1 at issue is primarily based on claim 3 of the application as filed, which originally defined the invention as follows: "*1. An active material for positive electrode for non-aqueous electrolyte secondary battery comprising a lithium-metal composite oxide represented by the general formula* $Li_x(Ni_{1-y}\ Co_y)_{1-z}M_zO_2$ *(*$0.98 \leqslant x \leqslant 1.10$*;* $0.05 \leqslant y \leqslant 0.4$*;* $0.01 \leqslant z \leqslant 0.2$*, in which M represents at least one element selected from the group consisting of Al, Mg, Mn, Ti, Fe, Cu, Zn and Ga), and having a C-amount of 0.14 wt % or less measured by way of the high-frequency heating-IR absorption method and a Karl Fischer moisture content of 0.2 wt % or less when heated to 180°C.*"

3.1.2 The further features in claim 1 at issue find their basis at pages 18 and 29 of the application as filed. Said pages defined the composite oxide as having been

synthesised from lithium compounds, nickel compounds, cobalt compounds, and metallic element M compounds via a blending step, a firing step, a crushing step, a sieving step and a classification step, and defined the crushing step, the sieving step and the classification step as being desirably conducted in a dehumidified atmosphere (page 18, lines 6 to 16), and preferably with at least the sieving step and the crushing step being carried out in an atmosphere free of carbon dioxide gas, such as a nitrogen atmosphere (page 29, lines 16 to 20).

3.1.3 The board cannot accept the respondent's argument that the subject-matter of amended claim 1 represented an inacceptable intermediate generalisation in the sense of e.g. decision T 1408/04 because, as explained in point 3.1.2 above, the amendments have not been arbitrarily picked out from the examples, but directly and unambiguously disclosed in the above-cited general passages from the description as filed. It follows from the above that the combination of features in claim 1 at issue have a basis in the application as filed. Claim 1 of the main request thus meets the requirements of Article 123(2) EPC.

3.2 Allowability of the amendments under Rule 80 EPC

In the board's view, the amendments to claim 1 satisfy the requirements of Rule 80 EPC, because the amendment consisting of the insertion of the sentence *"the lithium-metal composite oxide is synthesized from … in dehumidified air"* was filed with the aim of overcoming the opposition division's conclusions as to lack of novelty. Thus, this particular amendment was occasioned

by a ground for opposition under Article 100(a) EPC, as required by Rule 80 EPC.

That the appellant also took the opportunity to delete the word "*having*" from the sentence "*having a Karl Fischer moisture content of 0.2 wt % or less when heated to 180°C*" cannot be seen as an infringement to Rule 80 EPC because claim 1 already includes an amendment occasioned by a ground for opposition. Of course, when amending its claims, the proprietor should not use this as an opportunity to tidy them up, but it would be over-formalistic to reject a claim - with the consequence of the revocation of the patent - simply because a further minor and/or linguistic amendment was carried out.

4. *Main request - Novelty*

In the board's view, document D1 does not anticipate the subject-matter of claim 1 at issue for the following reasons.

4.1 D1 discloses, in particular in its claim 6, a method for preparing a lithium-containing complex metal oxide represented by the general formula:

$$Li_aNi_xCo_yAl_zO_2$$

with $0.96 \leqslant a \leqslant 1.06$, $0.70 \leqslant x < 0.85$, $0.05 \leqslant y \leqslant 0.20$, $0.10 < z \leqslant 0.25$, and $0.98 \leqslant (x+y+z) \leqslant 1.02$,

the method comprising the steps of blending at least one compound selected from the group consisting of lithium hydroxide and lithium oxide, at least one

compound selected from the group consisting of a nickel hydroxide and a nickel oxide, at least one compound selected from the group consisting of a cobalt hydroxide and a cobalt oxide, at least one compound selected from the group consisting of aluminium hydroxide and aluminium oxide, and a solvent to prepare a slurry containing the foregoing compounds; filtering blended solids from the slurry; drying the blended solids; and burning the blended solids in an oxygen-containing stream to obtain said lithium-containing complex metal oxide.

According to the passage at column 7, lines 57 to 60, the burning step is preferably carried out in a stream of dehumidified oxygen or air treated to remove carbon dioxide gas. Further, immediate removal of the water formed by the dehydration reaction during the burning step is preferably carried out (column 9, lines 2 to 4).

4.2 D1 does not literally disclose the carbon amount or the moisture content of the lithium-metal composite oxides thus prepared.

Both the opposition division and the respondent however held the concentrations of these two components to be implicit from the disclosure of D1 and to fall below the respective upper limits defined in claim 1 at issue.

4.3 The board cannot endorse these conclusions for the following reasons.

4.3.1 The specific lithium-containing complex metal oxides described in the patent specification (pages 6 to 10,

table 1) having a C-amount and a Karl Fischer moisture content falling within the terms of claim 1 at issue have been prepared by a process including the following sequence of operating steps:

- firing at 250°C for 4 hours, 450°C for 9 hours, and 730°C for 22 hours;
- crushing in a pin mill;
- sieving using a 25µm ultrasonic vibrating strainer to remove plus-mesh particles; and
- wind classifying to remove particles of 1µm or less.

According to the opposition division, "D1 discloses implicitly the same active material as the one claimed in claim 1, since the same method to manufacture it (sic) is disclosed in D1". For the board, this statement is incorrect because in D1, apart from the fact that a ball milling was carried out before the firing operation during the preparation of the specific oxides disclosed in the examples, none of the above operating steps is disclosed individually, let alone in combination with one another. In view of this incorrect statement, the conclusion of the opposition division that D1 disclosed the subject-matter of claim 1 at issue does not apply.

4.3.2 The board cannot endorse the respondent's argument that D1 explicitly taught to manufacture and process the lithium-complex oxides in the same way as the contested patent, namely in dehumidified air treated to remove carbon dioxide, in order to achieve an appropriate Karl Fischer moisture content and a low C-amount. As explained above, the patent discloses manufacturing steps and processing steps which are not disclosed in

D1. Furthermore, the respondent has not provided any evidence that the sole use of dehumidified air treated to remove carbon dioxide would achieve the required C-amount and Karl Fischer moisture content.

4.3.3 Furthermore, it is established case law of the boards of appeal that each party bears the burden of proof for the facts it alleges. This means that the opponent bears the burden of proof to show that D1 discloses directly and unambiguously the parameters defined in claim 1 at issue. The opponent – now respondent - challenged this view, and argued that once the opposition division revoked the patent, the burden of proof shifted to the patent proprietor, who had to demonstrate on appeal that the reasons for revoking the patent were not sound. It also cited decision T 0131/03 in this respect. Referring to reasons 2.3 to 2.8 of said decision, the respondent was of the opinion that when unusual parameters were used to define the claimed subject-matter, the patent proprietor could not merely be given the benefit of the doubt.

The board cannot accept these arguments. First of all, the parameters used in claim 1 are not unusual. In particular, the Karl Fischer moisture content is part of common general knowledge, since it is a classic titration method in analytical chemistry that uses coulometric or volumetric titration to determine trace amounts of water in a sample. The parameter "C-amount" is defined – see paragraph [0019] of the patent specification – as meaning the total amount of carbon contained, deposited and adhered in the lithium-metal composite oxide and measured by the high-frequency heating-IR absorption method disclosed in "*JIS Z 2615*,

General rules for determination of carbon in metallic materials". It follows from the above that neither of these two parameters is unusual.

As to the burden of proof, by analogy to the situations in decisions T 0499/00 (Reasons 1.10) and T 0954/93 (Reasons 7.6), the board decides against reversing the burden of proof from the opponent to the proprietor. Indeed, the assertions made by the respondent/opponent and in the contested decision have never been proven or do not apply. Moreover, in the present case, it was manifestly possible to reproduce the examples disclosed in document D1 and measure the C-amount and Karl Fischer moisture content in the active materials according to D1. In the absence of such evidence and in view of the conclusions reached by the opposition division, the board considers the novelty allegations unproven.

4.4 It follows that the subject-matter of claim 1 of this request is novel under Article 54 (1) and (2) EPC, at least in the light of document D1 which does not directly and unambiguously disclose Li-composite materials with a C-amount of 0.14 wt% or less, nor a Karl Fischer moisture content of 0.2 wt% or less.

5. Since the patentability issues addressed in the contested decision concerned only novelty in the light of document D1, the board considers it appropriate to exercise its power under Article 111(1) EPC to remit the case to the first instance for further prosecution.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance for further prosecution on the basis of the claims according to the main request dated 18 November 2011.

The Registrar: The Chairman:

C. Vodz G. Raths