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Datasheet for the decision of 8 October 2007

Case Number: T 0851/04 - 3.3.06

Application Number: 00980222.4

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Language of the proceedings: EN

Title of invention:
Tailoring compositions of matter

Applicant:
Atomic Ordered Materials, L.L.C.

Opponent:
-

Headword:
Processing matter/ATOMIC ORDERED MATERIALS

Relevant legal provisions:
EPC Art. 84, 83, 123(2), 111(1)

Keyword:
"Clarity: yes"
"Sufficiency of disclosure: yes"
"Compliance with Article 123(2) EPC: yes"
"Remittal: yes"

Decisions cited:
-

Catchword:
-

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Case Number: T 0851/04 - 3.3.06

D E C I S I O N
of the Technical Board of Appeal 3.3.06
of 8 October 2007

Appellant: Atomic Ordered Materials, L.L.C.
421 Currant Road
Fall River
MA 02720 (US)

Representative: Copsey, Timothy Graham
Kilburn & Strode
20 Red Lion Street
London WC1R 4PJ (GB)

Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 26 February 2004 refusing European application No. 00980222.4 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: P.-P. Bracke
Members: L. Li Voti
A. Pignatelli

Summary of Facts and Submissions

I. This appeal lies from the decision of the Examining Division to refuse European patent application No. 00980222.4, relating to a composition of matter.

II. In its decision, the Examining Division found in regard to the requirements of Article 84 EPC that

- the process step requiring "identifying a flow of third body for dissolved carbon level at 70% to 95% of $[C]_{eqsat}$" included in some of the claims was unclear;

- the claim relating to a copper material characterised by some images represented in the figures of the application related to subject-matter not characterized by means of technical features and thus contravened the requirements of Article 84 EPC; moreover, such a claim contained a large number of alternative characterisation methods for defining the same product and thus lacked conciseness.

As regards Article 123(2) EPC it found that

- the process steps 1 to 15 of the method of preparation included in the wordings of claims 1 and 13 according to the then pending main request and in claim 1 according to then pending first auxiliary request were derived from process steps 1 to 5 of the experimental procedure contained in the original description of the application; however, since these process steps did not include

all the features reported in said experimental procedure, such claims related to methods of preparation encompassing embodiments not described in the original documents of the application and thus contravened the requirements of Article 123(2) EPC.

The Examining Division found also that the invention contravened the requirements of Article 83 EPC as

– the process steps necessary for tailoring a material according to the invention were detailed in the experimental procedure described on pages 11 to 13 of the application as filed; however, step 2:1 of this procedure was applicable to molten material only and not to a substance as carbon which was one of the possible starting materials envisaged by the invention; therefore, this procedure could not be applied to the entire scope of starting materials encompassed by the invention;

– the application did not clarify the meaning of the material called "third body" used in step 3:2 of the experimental procedure reported in the description and how it had to be added during the process and processed in that step; consequently, this process step could not be reproduced by a skilled person;

– the application did not explain how the tailored copper having the properties shown in the figures of the application had been made from natural copper and how the compositions of matter of

tables 1, 2 and 3 had been prepared; furthermore, the application did not specify the experimental conditions under which the methods of measurements used for providing the images and plots represented in the figures had been carried out; therefore, the skilled person would have not been able to prepare or reproduce a tailored copper having the properties shown in the figures or the compositions of tables 1, 2 or 3.

III. An appeal was filed against this decision by the Applicant (Appellant).

With the letter of 1 May 2007 the Appellant submitted an amended set of 2 claims, claim 1 of which reads as follows:

"1. A method of processing matter, consisting of the steps of: (1) providing matter containing a 'p','d', and/or'f' atomic orbital which is capable of dissolving carbon; (2) Establishing a dissolved carbon level at 70% to 95% of $[C]_{eqsat}$; (3) Identifying temperature set points for 80% and 95% $[C]_{eqsat}$; (4) Sweeping the energy provided to the material between the predetermined set points of step (3), wherein sweep duration is 7 minutes up and 7 minutes down for 15 or more complete cycles; (5) Establishing a flow of argon for dissolved carbon level at 70% to 95% of $[Cl_{eqsat}$; (6) Identifying a flow of argon for dissolved carbon level at 70% to 95% of $[C]_{eqsat}$; (7) Sweeping the energy provided to the material between the predetermined set points, wherein the temperature is maintained above 70% $[C]_{eqsat}$ at all times and the temperature is maintained below 95% $[C]_{eqsat}$ at all times and wherein sweep duration is 7

minutes up and 7 minutes down for 5 complete cycles; (8) Raising the carbon level to $[C]_{eqsat}$ with continued argon addition; (9) Holding for 60 minutes at $[C]_{eqsat}$ with continued argon addition; (10) Raising the carbon level to $^{+}1\%_{wt}$ of $[C]_{eqsat}$ with continued argon addition and holding for 5 minutes; (11) Sweeping the energy provided to the material between $^{+}1\%_{wt}$ and $^{+}3\%_{wt}$ of $[C]_{eqsat}$ wherein sweep duration is 9 minutes up and 9 minutes down for 20 complete cycles ending at $^{+}1\%_{wt}$; (12) Ceasing argon addition; (13) Cooling to $^{+}4\%_{wt}$; (14) Sweeping the energy provided to the material between $^{+}4\%_{wt}$ and $^{+}7\%_{wt}$ of $[C]_{eqsat}$ wherein sweep duration is 3 minutes up and 5 minutes down for 4.5 complete cycles, ending at $^{+}7\%_{wt}$ and wherein argon is added on the up sweep and nitrogen is added on the down sweep; (15) Sweeping the energy provided to the material between $^{+}8\%_{wt}$ and $^{+}18\%_{wt}$ of $[C]_{eqsat}$ and cooling to obtain $^{+}8\%_{wt}$ with continued gas addition, wherein sweep duration is 15 minutes up and 15 minutes down for 15.5 complete cycles ending at $^{+}18\%_{wt}$ and wherein argon is added on the up sweep and nitrogen is added on the down sweep; (16) Ceasing all gas addition; and (17) Performing one complete sweep of the energy provided to the material between $^{+}14\%_{wt}$ to $^{+}18\%_{wt}$ of $[C]_{eqsat}$ ending at $^{+}18\%_{wt}$ and immediately cooling down, thereby obtaining a solidified matter, where

$^{+}n\%_{wt}$ represents the weight percent above the equilibrium saturation value of the material in its natural state, for example $^{+}1\%_{wt}$ represents $1\%_{wt}$ above the saturation value as defined in its natural state, and $[N]_{eqsat}$ represents the equilibrium saturation of "N" in its natural state, for example $[C]_{eqsat}$ represents the equilibrium saturation of carbon for the thermodynamic

state specified, when the composition is in its natural state."

Dependent claim 2 relates to the method of claim 1 wherein the matter processed is copper.

IV. The Appellant submitted in writing *inter alia* that

- the amended claims complied with the requirements of Article 84 EPC;

- claim 1 contained all the process steps of the experimental procedure reported in the original description of the application and thus complied with the requirements of Article 123(2) EPC;

- moreover, the replacement of the wording "third body" in process step 6 with "argon" and of the wording "variant energy input" with "energy provided to the material" did not contravene the requirements of Article 123(2) EPC since these replacing wordings had the same meaning as the former ones.

As regards Article 83 EPC the appellant submitted that

- the skilled person would have been able at the priority date of the present application to perform the invention by following the experimental procedure given in the description and by using his common general knowledge to supplement the information given therein, as explained and shown in Lemoi's statements of

1 June 2004 and of 17 October 2003, containing the exhibits A, B and C.

V. The Appellant requests that the decision under appeal be set aside and that the case be remitted to the department of first instance for consideration of the patentability of the amended claims.

Reasons for the Decision

1. *Clarity*

1.1 The Board notes that the amended claims 1 and 2 do not regard a composition of matter but a method of processing matter characterized by process steps only.

Moreover, the claimed method does not require any longer the identification of "flow of third body for dissolved carbon level at 70% to 95% of $[C]_{eqsat}$" in its step 6.

Therefore, the Board finds that none of the deficiencies raised under Article 84 EPC in the decision of the department of first instance (see point II above) applies any longer to the amended claims of 1 May 2007.

1.2 The Board finds also that the process step 6 requiring the identification of "flow of argon for dissolved carbon level at 70% to 95% of $[C]_{eqsat}$" is clear and supported by the description.

In fact, it follows from the Lemoi's statement of 1 June 2004 that the wording "identify flow of third body" used in the original description of the application (step 3:2 on page 12, lines 1 to 2) would have been understood by the skilled person at the priority date of the present application to relate to the flow of an inert material which contributes to the undergoing reaction, i.e. in the present case to the flow of an inert gas.

Since the preceding step 3:1 (page 11, lines 28 to 29) requires the establishment of flow of argon, which is an inert gas, for dissolved carbon level at 70% to 95% of $[C]_{eqsat}$, it is clear that the "flow of third body" referred to in the following step 3:2 is a flow of the same argon gas used in step 3:1 under the same conditions of dissolved carbon level.

1.3 Since the Board has no reason to contest the Lemoi's statement, it is satisfied that the amended claims comply with the requirements of Article 84 EPC since their wording is clear, concise and supported by the description.

2. *Article 123(2) EPC*

The Board notes that the claimed method contains all the process steps of the experimental procedure contained on pages 11 to 13 of the original documents of the application with the only difference that the wording "flow of third body" has been replaced with the wording "flow of argon" and the wording "the variant energy input" has been replaced with "the energy provided to the material".

The replacement of the wording "flow of third body" with "flow of argon" in process step 6 has been discussed in point 1.2 above. Since these wordings have the same meaning within the context of the specific method of the present application, this amendment complies with the requirements of Article 123(2) EPC.

Moreover, the wordings "the variant energy input" and "the energy provided to the material" have also the same meaning in the present case since it would have been clear to the skilled person on a proper reading of the experimental procedure contained on pages 11 to 13 of the original documents of the application that the "variant energy input" provided and swept during the process is the "energy provided to the material" which energy has to be swept according to the process and thus is necessarily variant.

Therefore, the amended claims comply with the requirements of Article 123(2) EPC.

3. *Article 83 EPC*

In the light of the evidence submitted by the Appellant with the statement of the grounds of appeal, i.e. the Lemoi's statement of 1 April 2004, and before the department of first instance, i.e. the Lemoi's statement of 17 October 2003 with annexes A, B and C, showing the application of the experimental procedure detailed in the description to several metals including copper, the Board has no reason to doubt that the skilled person would have been able to carry out and reproduce the claimed method of processing matter by

following the experimental procedure contained in the original description of the application and by using his common general knowledge at the priority date of the present application to supplement the information given therein.

In particular, the Board has no reason to doubt that the skilled person would have been able to dissolve carbon in a metal in order to achieve the specific equilibrium saturation required.

Moreover, the Board finds that there is no reason to assume that the products described in the application could not be prepared by following said experimental procedure.

Since the claimed invention does not regard any longer a product having specific properties but only a method of processing matter, the other deficiencies found by the department of first instance (see point II above) do not apply any longer.

Therefore, the invention satisfies the requirements of Article 83 EPC.

4. *Remittal*

Since the amended claims meet the objections on which the appealed decision relies and the appealed decision dealt exclusively with Articles 83, 84 and 123(2) EPC, the Board considers it appropriate to exercise its discretion under Article 111(1) EPC to remit the case to the Examining Division for further consideration of the patentability of the amended claims.

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 on the basis of claims 1 and 2 submitted with letter of 1 May 2007.

The Registrar: The Chairman:

G. Rauh P.-P. Bracke