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**D E C I S I O N**  
**of 9 January 2004**

**Case Number:** T 0516/03 - 3.2.3

**Application Number:** 00110665.7

**Publication Number:** 1043098

**IPC:** B22F 1/00

**Language of the proceedings:** EN

**Title of invention:**

Method for forming dendritic metal particles

**Applicant:**

Mykrolis Corporation

**Opponent:**

-

**Headword:**

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**Relevant legal provisions:**

EPC Art. 84

**Keyword:**

"Claims - clarity (yes)"

**Decisions cited:**

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**Catchword:**

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Case Number: T 0516/03 - 3.2.3

**D E C I S I O N**  
of the Technical Board of Appeal 3.2.3  
of 9 January 2004

**Appellant:** Mykrolis Corporation  
Patriots Park  
Bedford, MA 01730 (US)

**Representative:** Henkel, Feiler, Hänzel  
Möhlstrasse 37  
D-81675 München (DE)

**Decision under appeal:** Decision of the Examining Division of the  
European Patent Office dated 5 December 2002,  
posted on 18 December 2002, refusing European  
application No. 00110665.7 pursuant to Article  
97(1) EPC.

**Composition of the Board:**

**Chairman:** C. T. Wilson  
**Members:** F. Brösamle  
J. P. Seitz

## Summary of Facts and Submissions

- I. In the oral proceedings of 5 December 2002 the examining division refused European patent application No. 00 110 665.7 for reasons of lacking clarity. The written decision was issued on 18 December 2002.
- II. Against the above decision the applicant - appellant in the following - lodged an appeal on 14 February 2003 paying the fee on the same day and filing the statement of grounds of appeal on 28 April 2003.
- III. Following the board's communication dated 16 May 2003 in which the board expressed its provisional assessment of the case with respect to the definitions of "dendritic" and "non-dendritic" and the words "specific particles" used in the claims the appellant, with letter dated 7 November 2003, filed new claims 1 to 19.
- IV. Claim 1 thereof reads as follows:

"1. A method for reducing the air-laid density of a powder comprising the steps of performing the following steps (a) and (b) in sequence, two or more times:

- (a) heating a powder comprising particles comprising one filament not having one dimension substantially greater than the other two, said particles comprising a metal in form of a metallic or metalloid chemical element or an alloy of two or more of these elements or a ceramic material under conditions suitable for short-range diffusional sintering, thereby forming a lightly sintered material; and

(b) breaking the lightly sintered material, thereby forming particles of a highly anisotropic, irregular morphology comprising one or more filaments individually having one dimension substantially greater than the other two, wherein the air-laid density of said particles formed is reduced by at least 20 % compared to said starting particles having a more regular morphology and being shorter and thicker, said starting particles comprising one filament not having one dimension substantially greater than the other two."

V. The appellant accepted the board's suggestions made in the above communication and amended the claims and the description to overcome any objections under Article 84 EPC.

VI. The appellant requested to set aside the impugned decision and to grant a patent on the basis of the documents filed on 7 November 2003, namely:

- claims 1 to 19;
- description: pages 1 to 17
- drawings: Figures 1 to 6.

## Reasons for the Decision

1. The appeal is admissible.

2. *Clarity*

2.1 Claim 1 now relates to "a method for reducing the air-laid density of a **powder**" (stress added) as set out in

EP-A2-1 043 098, see column 4, lines 44 to 49, and column 6, lines 47 to 54, instead of the incorrect former words "**specific particles**" (stress added).

- 2.2 To overcome the clarity objection raised in the impugned decision of the examining division and in the board's preliminary communication of 16 May 2003 the appellant has deleted "dentritic" and replaced it by his own definition set out in EP-A2-1 043 098, see column 4, lines 1 to 5, namely particles "of a highly anisotropic, irregular morphology comprising one or more filaments individually having one dimension substantially greater than the other two" which amendment appears to be clear and to meet the requirements of Article 123(2) EPC.
- 2.3 Based on column 4, lines 7 to 10, and column 6, lines 46/47 of EP-A2-1 043 098 the appellant redefined the former "non-dentritic" particles as "having **a more regular morphology** and are **shorter** and **thicker** ... comprising one filament **not** having one dimension substantially greater than the other two" (stress added) so that claim 1 and its dependent claims are no longer open to an objection of clarity within the meaning of Article 84 EPC.

### 3. *Amendments*

- 3.1 As can be seen from the above observations the replacement features/technical terms are clearly derivable from EP-A2-1 043 098 being identical with the originally filed documents so that there is a clear basis for appellant's amendments of the claims in this respect.

3.2 Claim 1 combines the features of originally filed claims 1 and 2 ("in sequence, two or more times..."), column 4, lines 1 to 5 ("particles of a highly anisotropic, irregular morphology...") and column 6, lines 51 to 54 ("by at least 20% compared to said non-dentritic starting particles") of EP-A2-1 043 098 so that the requirements of Article 123(2) EPC are met.

3.3 Dependent claims 2 to 18 correspond to originally filed claims 3 to 19 and claim 19 combines the features of originally filed claim 20 and of column 4, lines 2/3 ("highly anisotropic, irregular morphology") of EP-A2-1 043 098 meeting again the requirements of Article 123(2) EPC.

3.4 The amended description is now consistent with the claims and meets the requirements of Articles 84 and 123(2) EPC.

#### 4. *Novelty*

4.1 In the light of

- (D1) GB-A-2 074 609
- (D2) US-A-4 464 206 and
- (D3) GB-A-829 640

the subject-matter of claim 1 is novel since none of them addresses the problem of the present invention, namely starting from "non-dentritic" particles (as originally disclosed) which are transformed into particles of a highly anisotropic, irregular morphology so that the air-laid density of the powder is reduced.

Since novelty was not questioned by the first instance and is accepted by the board it is not necessary to deal with it in detail.

- 4.2 (D4), namely German, R.M., "Powder Metallurgy Science", 2nd Ed. 1994, pages 28-30, 37, 63, 85, 167 and 436, is a handbook and discloses one possible definition for "dendritic" for a skilled person, without, however, being relevant for the problem of how the air-laid density of particles could be reduced. Under these circumstances (D4) is also not a novelty-destroying document with respect to the subject-matter of claim 1.

5. *Inventive step*

- 5.1 In the absence of prior art documents which address the problem of the claimed invention and its solution according to features a) and b) of claim 1, namely to perform them in sequence, two or more times, the skilled person for instance starting from (D3) was not lead to the subject-matter of claim 1 in an obvious way, rather had to exercise an inventive endeavour to achieve it, namely to start from a powder as defined in feature a) of claim 1, to heat this powder to achieve a lightly sintered material which is subsequently dealt with according to feature b) of claim 1, namely breaking it to form particles of a different constitution (highly anisotropic, irregular morphology comprising one or more filaments individually having one dimension substantially greater than the other two), wherein the air-laid density is reduced by at least 20% compared to the starting material and a powder is obtained which is suitable for metal membrane filters, see EP-A2-1 043 098, column 2, lines 2/3.

- 5.2 Summarizing, the subject-matter of claim 1 is novel and inventive, Articles 54 and 56 EPC, and claim 1 allowable.
- 5.3 Claims 2 to 19 are likewise allowable since they relate to embodiments of the subject-matter of claim 1.
6. The amended description is also suited for grant in combination with claims 1 to 19 and Figures 1 to 6.

## **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 with the order to grant a patent with the following documents, all filed on 7 November 2003:
  - (a) claims 1 to 19;
  - (b) description: pages 1 to 17;
  - (c) drawings: Figures 1 to 6.

The Registrar:

The Chairman:

D. Sauter

C. T. Wilson