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Datasheet for the decision of 18 November 2014

Case Number: T 2563/12 - 3.2.08

Application Number: 07844404.9

Publication Number: 2106455

IPC: C22C45/00, C23C4/10

Language of the proceedings: EN

Title of invention:
PROTECTIVE COATING FOR CONCRETE DELIVERY SYSTEM COMPONENTS

Applicant:
The Nanosteel Company, Inc.

Headword:

Relevant legal provisions:
EPC Art. 84

Keyword:
Claims - clarity (no)

Decisions cited:

Catchword:

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Case Number: T 2563/12 - 3.2.08

D E C I S I O N
of Technical Board of Appeal 3.2.08
of 18 November 2014

Appellant: (Applicant)	The Nanosteel Company, Inc. 272 West Exchange Street, Suite 300 Providence, RI 02903 (US)
Representative:	Kierdorf Ritschel Sattlerweg 14 51429 Bergisch Gladbach (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 18 June 2012 refusing European patent application No. 07844404.9 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	T. Kriner
Members:	M. Alvazzi Delfrate
	C. Schmidt

Summary of Facts and Submissions

I. By its decision posted on 18 June 2012 the examining division refused European patent application No. 07 844 404.9.

II. The appellant (applicant) lodged an appeal against that decision in the prescribed form and within the prescribed time limit.

III. Oral proceedings before the Board of Appeal were held on 18 November 2014.

IV. The appellant requests that the decision under appeal be set aside and that a patent be granted on the basis of the main or the first auxiliary request both filed with letter dated 29 October 2012 or on the basis of one of the second or third auxiliary requests as filed with letter dated 20 October 2014.

V. Claim 1 of the **main request** and of the **first auxiliary request** reads as follows:

"1. A concrete delivery system comprising:
(a) a substrate for a concrete delivery component having a surface comprising a metal/metal alloy; and
(b) a protective coating overlying a portion of said surface comprising a glass forming multi-component metal alloy consisting of Fe, Cr, Mo, W, Mn, B, Si and C and comprising more than 50 % by weight of iron, having a melting point in the range of 800 to 1500°C and having a critical cooling rate for metallic glass formation of less than 10^5 K/s, wherein at least a portion of said alloy has structural association sizes in the range of one or more of the following:
(i) 5 Angstroms to 100 Angstroms,

(ii) 10 to 150 nm, or
(iii) 150 to 1,000 nm, and wherein said coating comprises particles comprising carbides, borides, or combinations thereof."

Claim 1 of the **second and third auxiliary requests** reads as follows (differences in respect of the main request emphasised):

"1. A concrete delivery system comprising:
(a) a substrate for a concrete delivery component having a surface comprising a metal/metal alloy; and
(b) a protective coating overlying a portion of said surface comprising a glass forming multi-component metal alloy consisting of Fe, Cr, Mo, W, Mn, B, Si and C and comprising more than 50 % by weight of iron, having a melting point in the range of 800 to 1500°C and having a critical cooling rate for metallic glass formation of less than 10^5 K/s, wherein ~~at least a portion of~~ said alloy has structural association sizes in the range of ~~one or more of the following:~~
(i) 5 Angstroms to 100 Angstroms,
and 50% by volume or greater of structural association sizes in the range of
(ii) 10 to 150 nm, or
(iii) 150 to 1,000 nm,
as determined by scanning electron microscopy or transmission electron microscopy, and wherein said coating comprises particles comprising carbides, borides, or combinations thereof."

VI. The appellant's arguments can be summarised as follows:

It was true that the application in suit did not comprise an explicit definition of the term "structural association sizes". However, for the person skilled in

the art it was clear that this wording related to the domains or units present in the metallic material which were mentioned on page 3 and page 6 of the application. Hence, it was clear that in case of the range 5-100 Angstrom the structural association was the short order of a metal glass. When the material was devitrified as described on page 4, crystalline grains were formed and the term structural association referred instead to said grains. Hence, the use of the general term "structural association sizes" was justified by the need to refer to different types of domains, depending upon whether the material was a glass or a nanoscale or near-nanoscale material. Accordingly, claim 1 of the main and the first auxiliary requests did not lack clarity. The same applied to claim 1 of the second and third auxiliary requests, which specified that the material was partially devitrified.

Reasons for the Decision

1. The appeal is admissible.

2. Claim 1 of the main request is directed to a concrete delivery system comprising a substrate with a surface comprising a metal/metal alloy, wherein at least a portion of said alloy has "structural association sizes" in the range of one or more of the following:
(i) 5 Angstroms to 100 Angstroms,
(ii) 10 to 150 nm, or
(iii) 150 to 1,000 nm.

The term "structural association sizes" is neither a term which has a well-recognised meaning in the field of alloys nor is it defined in the application in suit.

The appellant did not dispute this fact but argued that for the person skilled in the art it was clear that this wording related to the domains or units present in the metallic material and mentioned on page 3 and page 6 of the application. However, the claim refers to "structural association sizes" and not to "domains" or "units" and the description does not state that the terms are equivalent.

Moreover, notwithstanding this fact, the latter terms do not have a well-recognised meaning in the field of the application either. Hence, even if one were to assume that the "structural association sizes" are "domains" or "units", this would not clarify the definition of the matter for which protection is sought as given by the claim.

Finally, accepting the appellant's view that the general term "structural association sizes" refers to different types of "domains" depending on whether the material is a glass or a nanoscale or near-nanoscale material would further increase the confusion, since it would be unclear, for instance for materials at the border between metallic glasses and nanocrystalline materials, which type of "domains" are to be considered.

Accordingly, the distinctions which delimit the scope of protection cannot be learnt from claim 1 of the main request, which, as a consequence, lacks clarity within the meaning of Article 84 EPC.

3. Since claim 1 of the first, second and third auxiliary requests also refers to "structural association sizes" these claims also lack clarity.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

V. Commare T. Kriner

Decision electronically authenticated