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D E C I S I O N
of 16 June 2003

Case Number: T 1063/00 - 3.2.7

Application Number: 95938516.2

Publication Number: 0795045

IPC: C23C 22/83

Language of the proceedings: EN

Title of invention:
Composition and method for treatment of conversion-coated metal surfaces

Applicant:
CHEMETALL PLC

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step - (yes after amendment)"

Decisions cited:
-

Catchword:
-

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Case Number: T 1063/00 - 3.2.7

D E C I S I O N
of the Technical Board of Appeal 3.2.7
of 16 June 2003

Appellant: CHEMETALL PLC
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 12 April 2000 refusing European patent application No. 95 938 516.2 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: A. Burkhart
Members: H. E. Hahn
C. Holtz

Summary of Facts and Submissions

I. The appellant (applicant) lodged an appeal against the decision of the Examining Division to refuse European patent application No. 95 938 516.2.

II. The Examining Division held that the subject-matter of the independent composition claim 1 and the independent method claim 15 lacked an inventive step.

The most relevant prior art documents are:

D1: EP-A-0 159 973

D2: Ullmann, Enzyklopädie der techn. Chemie, 4th edition, volume 21, pages 499, 501 and 503.

III. The appellant requested that the decision under appeal be set aside and a patent be granted on the basis of claims filed on 14 May 2003.

IV. The independent claims 1 and 12 under consideration read as follows:

"1. A rinse solution comprising an aqueous solution of Group IVA metal ion which comprises hafnium and an organosilane in a concentration in the range 0.1 to 7.0% w/w and selected from methyltrimethoxysilane, 3-glycidoxypropyltrimethoxysilane and phenyltrimethoxysilane, and mixtures thereof, with the Group IVA metal ion concentration selected to provide a pH for the entire solution in the range 2.0 to 9.0."

"12. A process for treating conversion-coated metal substrates applying to the conversion-coated substrate

an aqueous solution of a Group IVA metal ion, which comprises hafnium, and an organosilane in a concentration in the range 0.1 to 7.0% w/w and selected from methyltrimethoxysilane, 3-glycidoxypropyltrimethoxy-silane and phenyltrimethoxysilane, and mixtures thereof, having a pH in the range 2.0 to 9.0."

Reasons for the Decision

Article 123(2) EPC

1. The independent claims 1 and 12 are identical with the originally filed claims 3 and 16. The dependent claims 2 to 11 and 13 to 18 are based on the originally filed claims 4 to 5, 9 to 14 and 18 to 21. Hence the requirements of Article 123(2) EPC are met for the claims 1 to 18.

Novelty

2. Document D1 discloses aqueous rinse solutions comprising a solution of a Group IVA metal comprising titanium and/or zirconium and an organosilane. The solution contains about 0.5 to 100 g/l organosilane (corresponding to 0.05 to 10% by weight), preferably 1 to 50 g/l (corresponding to 0.1 to 5.0% by weight) and may have a pH value of 3.0 or 4.0 (cf. D1, claims 1 to 4; examples 1 and 2). The solutions can be used for treating conversion coated metal surfaces. D1 mentions some specific examples of the organosilanes, e.g. vinyltriethoxysilane, methacryloxypropyltrimeth-oxysilane, etc. (cf. page 4, second paragraph; examples).

2.1 The subject-matter of claims 1 and 12 is distinguished from the disclosure of D1 by the features of (a) hafnium ion; and (b) the specific organosilanes methyltrimethoxysilane, 3-glycidoxy-propyltrimethoxysilane and phenyltrimethoxysilane, and their mixtures; and (c) the pH range of 2.0 to 9.0 of the solution.

2.2 Document D2 is less relevant since it does not disclose any aqueous rinse compositions comprising Group IVA metal ions.

2.3 The Board thus concludes that the subject-matter of claims 1 and 12 is novel.

Inventive step

3.1 Closest prior art

The closest prior art is represented by document D1, identified in the present application at page 3, line 25 to 27, which does not disclose hafnium ions and which discloses different organosilanes.

3.2 Problem to be solved

The Board agrees with the statement in the application that the problem to be solved is to provide a method and composition of an aqueous rinse which will impart an improved level of paint adhesion and corrosion resistance on painted, conversion coated metal and which contains no chromium.

3.3 Solution to the problem

The problem is solved by the aqueous rinse solution as defined in claim 1 and the process of applying the same as defined in claim 12, in particular by the combination of the features (a) and (b) (see point 2.1 above).

From the results given in the examples of the application (compare tables I-VI) it is credible that the claimed measures provide an effective solution to the technical problem.

3.4 For the subject-matter of present claims 1 and 12 (corresponding to the originally filed claims 3 and 16) a positive indication of inventive step was already given in section V of the International Preliminary Examination Report (IPER) produced at the EPO. The Board concurs with this view, for the following reasons:

The subject-matter claimed in claims 1 and 12 is not derivable from D1 when taken alone since it only discloses aqueous rinse solutions comprising a solution of a Group IVA metal comprising titanium and/or zirconium and an organosilane. D1 does nowhere suggest the addition of hafnium ions.

Similarly, a combination of the teaching of D1 with the cross-referenced D2 and the specific organosilanes (such as methyltrimethoxysilane and 3-glycidoxy-propyltrimethoxysilane) disclosed therein does not lead to the subject-matter claimed since also document D2 does not disclose the use of hafnium ions.

3.5 The Board therefore concludes that the subject-matter of the independent claims 1 and 12 involves an inventive step and therefore meets the requirements of Article 52(1) EPC within the meaning of Article 56 EPC.

The same applies to the subject-matter of the dependent claims 2 to 11 and 13 to 18, which define further preferred embodiments of the composition and the process according to claims 1 and 12, respectively.

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 in the following version:

Claims: 1 to 18 filed on 14 May 2003 with letter of 13 May 2003

Description: pages 1 to 3, 9 and 10 as originally filed
pages 4, 6, 8 and 11 to 18 filed with fax of 4 April 2003
pages 5 and 7 filed on 14 May 2003 with letter of 13 May 2003

The Registrar: The Chairman:

D. Spigarelli A. Burkhart