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Datasheet for the decision of 20 December 2007

Case Number: T 0317/05 - 3.3.05

Application Number: 00307882.1

Publication Number: 1084746

IPC: B01J 13/00

Language of the proceedings: EN

Title of invention:
Method for producing metallic colloid, and metallic colloid produced by the same method

Applicant:
Yokohama Town Service Co., Ltd.

Opponent:
-

Headword:
Platinum colloid/YOKOHAMA

Relevant legal provisions:
EPC Art. 84, 54(1), 56, 123(2)

Keyword:
"Added subject-matter (no)"
"Clarity (yes)"
"Novelty (yes)"
"Inventive step (yes)"

Decisions cited:
-

Catchword:
-

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Case Number: T 0317/05 - 3.3.05

D E C I S I O N
of the Technical Board of Appeal 3.3.05
of 20 December 2007

Appellant: Yokohama Town Service Co., Ltd.
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 13 August 2004 refusing European application No. 00307882.1 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: G. Raths
Members: J.-M. Schwaller
S. Hoffmann

Summary of Facts and Submissions

I. This appeal is from the decision of the examining division refusing European patent application No. 00307882.1 concerning a method for producing metallic colloid, and metallic colloid produced by the same method. The decision was based on two sets of amended claims submitted respectively as main and auxiliary request during the oral proceedings of 22 July 2004.

II. The following documents were *inter alia* relied upon during the examination proceedings:

D1: PATENT ABSTRACTS OF JAPAN, vol. 1998, no. 8, 30 June 1998 & JP 10068008 A, 10 March 1998;

D2: PATENT ABSTRACTS OF JAPAN, vol. 1998, no. 11, 30 September 1998 & JP 10 176207 A, 30 June 1998.

III. In the contested decision, the examining division held *inter alia* that:

– claim 5 of the main request then on file, which related to a product-by-process, lacked novelty over D2.

– claim 1 of the auxiliary request then on file, which related to a method for producing platinum colloid, lacked an inventive step over D2.

In summary, the reasons put forward in the contested decision as regards the lack of inventive step objection were as follows:

The subject-matter of claim 1 distinguished from D2 in that the amounts of the different constituents were not mentioned in D2. The problem to be solved was to provide an alternative process for making platinum colloid. The skilled person would arrive at the claimed invention without inventive skill, as it appeared from D2 that the different constituents could be used in different amounts to obtain the platinum colloid and thus the solution to this problem was obvious for the skilled person.

IV. The statement of grounds of appeal filed with letter of 13 December 2004 relied on the two sets of claims (main and auxiliary request) on which the contested decision was based. The letter further enclosed the following documents:

- D1a: machine translation into English of the whole Japanese application of which the abstract D1 was on file

- D2a: machine translation into English of the whole Japanese application of which the abstract D2 was on file

- an experimental report dated 25 November 2004 showing the results of comparative experiments carried out between embodiments from the present application and from D1.

The appellant also requested the refund of the appeal fee.

V. On 3 August 2005, the appellant filed a corrected version of the Table appearing on page 2 of the experimental report.

VI. In response to a communication wherein the board questioned *inter alia* the clarity of the amended claims and the novelty of the "product-by-process claim", the appellant filed on 5 December 2007 a new set of claims 1 to 5 as sole request. It also filed another corrected version of the Table appearing on page 2 of the experimental report as well as a corrected page 3 of said experimental report.

VII. During the oral proceedings, which took place on 20 December 2007, after a discussion concerning issues under Articles 123(2) and 84 EPC, the appellant filed a new set of amended claims 1 to 4 as sole request. It also withdrew its request for reimbursement of the appeal fee.

Claim 1 of said request reads as follows:

"*1. A method for producing platinum colloid, by reducing platinum ions by agitating a treatment solution, in which a surface-active agent is added to water and into which a metallic ion solution comprising platinum chloride acid solution in a concentration of 20% by weight in that the amount of platinum in grams is divided by the amount of platinum chloride acid solution in ml and a pH compensating agent are doped, while controlling the temperature of said treatment solution in a range of 60-80°C, under a reductive atmospheric condition formed in the treatment solution,*

characterized in that said pH compensating agent and platinum chloride acid solution are simultaneously doped into said treatment solution; and in that water is used with a volume ratio of 400 to 500 parts with respect to a platinum chloride acid solution whose volume is 1 part, said surface-active agent is a non-ion based surface-active agent, the amount of doping of said non-ion surface-active agent is 0.2 to 2 times by volume with respect to that of said platinum chloride acid solution, the amount of doping of a reducing agent is 40 to 60 times by volume with respect to that of said platinum chloride acid solution, and said pH compensating agent is to adjust the pH of said treatment solution to neutral or weak alkalinity, wherein the amount of doping of said pH compensating agent having a concentration of 5% by weight is set in a range from 10 to 30 times by volume with respect to that of said platinum chloride acid solution."

Claims 2 to 4 are dependent on claim 1 and represent particular embodiments of the method according to claim 1.

VIII. The appellant's arguments, as far as they are relevant for the present decision, can be summarized as follows:

The simultaneous doping of the reducing agent and the surface-active agent into the treatment solution is not an essential feature.

Starting from D1 or D2, the problem to be solved was to provide an improved process for producing a more active and more stable platinum colloid.

IX. The appellant requests that the decision under appeal be set aside and that a patent be granted on the basis of the sets of claims 1 to 4 submitted during the oral proceedings before the board.

Reasons for the Decision

1. *Allowability of the amended claims (Article 123(2) EPC)*

Claim 1 of the present request finds its support at page 9, lines 17 and 18; page 11, lines 6 and 7; page 12, line 5 to 7; page 12, line 16 to page 14, line 16 and claims 1, 2 and 5 of the application as filed.

Claims 2, 3 and 4 find their support in claims 3, 4 and 5 of the application as filed.

The claims hence do not extend beyond the content of the application as filed and meet the requirements of Article 123(2) EPC.

2. *Clarity - essential features (Article 84 EPC)*

The objections under Article 84 EPC previously raised by the board no longer apply for the following reasons:

2.1 The clarification to claim 1 that the amounts and ratio of the different components used in the process claimed are defined in terms of parts by volume overcomes the uncertainty which resulted from the absence of this feature. This amendment - and thus the replacement of the terms "capacity ratio" and "capacity", originally

defined in claim 1, respectively by "volume ratio" and "volume" - at the same time overcomes the objection that the terms "capacity ratio" and "capacity" had been wrongly used in the context of claim 1 previously on file.

2.2 The amendment of the expression previously recited in claim 1: "wherein the amount of doping of said pH compensating agent is set in a range from 10 to 30 times with respect to that of said platinum chloride acid solution if the concentration thereof is 5%" (emphasis added by the board) into "wherein the amount of doping of said pH compensating agent having a concentration of 5% by weight is set in a range from 10 to 30 times by volume with respect to that of said platinum chloride acid solution" (emphasis added by the board) makes clear that the "concentration of 5%" is to be calculated on a weight basis and that it specifically refers to the compensating agent, and not to the platinum chloride solution as could be understood previously.

2.3 At the oral proceedings, the board observed that in the sole embodiment exemplified in the present application (see page 12, line 16 to page 14, line 16), the reducing agent and the surface-active agent were doped simultaneously into the water and the question then arose whether this feature was essential. In view of the appellant's argument that the skilled reader would derive from the application as filed, in particular from page 11, lines 5 to 17 and from dependent claims 4 and 5, that the reducing agent can as well be doped separately from the surface active agent, the board accepts that the feature relating to simultaneous

doping of the reducing agent and the surface active agent is not essential for the performance of the invention and that it needs therefore not be recited in claim 1.

2.4 The deletion of the "product-by-process" claim previously on file overcomes the clarity objection raised against this claim.

3. *Novelty*

The deletion mentioned under item 2.4 *supra* also overcomes the novelty objection raised against the "product-by-process" claim previously on file.

The novelty of present process claim 1 was never disputed and as can be seen below under item 4.4.1, its subject-matter distinguishes from the most relevant prior art documents.

Hence the subject-matter of claim 1 is novel with respect to the cited prior art and consequently the requirements of Article 54(1) EPC are met.

4. *Inventive step*

4.1 It is undisputed that the Example of D1a or D2a, in any detail identical in both documents, represents the closest prior art to the subject-matter of present claim 1, directed to a method for producing platinum colloid.

4.2 In said Example, a platinum colloid was prepared as follows: 3000 cc of purified water were put into a

container, 20 cc of Polysorbate 80 as the protective colloid were then added, and the mixture agitated on a hot stirrer. After full dissolution of the protective colloid, 1000 cc of ethanol were supplied and subsequently 50 cc of chloroplatinic acid solution were added. The liquid was agitated and subsequently 30 g of $NaHCO_3$ were gradually added, as well as purified water in order to adjust the total volume to 5000 cc. After 3 hours of hot stirring, 30 g of $NaHCO_3$ were gradually added and the mixture was stirred for 30 additional minutes at 1000 rpm. After cooling to room temperature, the impurities were filtered out and thereafter a dialysis process was performed. Thereafter a black platinum colloidal solution of 10.2 g/l was obtained. Said colloid maintained high activity without precipitating for a long period of time.

4.3 Starting from this prior art and referring to the experimental report filed with the grounds of appeal, the appellant stated that the problem to be solved by the subject-matter of claim 1 was to provide an improved process for producing a more active and more stable platinum colloid.

4.4 The board cannot accept this formulation of the problem to be solved for the following reasons:

4.4.1 The subject-matter of present claim 1, which is proposed to solve the above problem, distinguishes from the method described in the Example of D1a or D2a in that:

- the volume ratio of water to platinum chloride acid solution is **400 to 500** (in the Example of D1a or D2a, its value is **78.6**);

- the amount of doping of reducing agent is **40 to 60** times by volume that of platinum chloride acid solution (compared with **20** times in the Example of D1a or D2a);
- the amount of doping of the pH compensating agent having a concentration of 5% by weight is set in a range from **10 to 30** times by volume with respect to that of the platinum chloride acid solution (in D1a or D2a, the volume ratio is not indicated);
- the pH compensating agent ($NaHCO_3$) and the platinum chloride solution are **simultaneously** doped into the treatment solution (in the example of D1a or D2a, $NaHCO_3$ is added **after** the chloroplatinic acid solution).

4.4.2 The Table at page 2 of the experimental report (in the corrected version as filed on 5 December 2007), shows a comparison between the invention and the closest prior art represented by document D1/D1a and summarizes in particular the manufacturing conditions according to the specific embodiment of the present application (left column of the Table) and those of D1/D1a (right column). It results from this table that the amounts of constituents and the order of addition of $NaHCO_3$ and chloroplatinic acid solution are not the sole features which distinguish from each other the two processes summarized in the above Table. For instance, the temperature of the treatment solution, or the number of steps needed to add $NaHCO_3$, are such further features which distinguish the subject-matter of present claim 1 from the method used to perform the test on which the appellant relied for giving evidence of the improvement.

In other words, the method according to the experimental report does not reflect the method as claimed.

4.4.3 Under these circumstances, the alleged effects (improved activity and stability of the platinum colloid) put forward by the appellant cannot be taken into account for the assessment of inventive step. Therefore it is necessary to reformulate the problem to be solved by the subject-matter of claim 1 in less ambitious terms, namely providing an alternative process for preparing a platinum colloid.

4.5 In view of the content of the description, in particular embodiment 1, it is credible that the problem has been effectively solved by the process as defined in claim 1. The question is whether this technical solution involves an inventive step or not.

4.6 The skilled person does not find in D1a/D1 or D2a/D2 any information that a platinum colloid with an acceptable activity and stability may still be obtained with a volume ratio of water to platinum chloride acid solution and an amount of doping of the reducing agent much higher than those described in the Example of D1a or D2a. The skilled person does also not find any information in these documents that the pH compensating agent ($NaHCO_3$) and the platinum chloride solution may be simultaneously doped into the treatment solution. The other documents too cited in the European search report do not suggest the combination of operating conditions as defined in present claim 1 to solve the problem defined under point 4.4.3 *supra*.

4.7 Accordingly, for the reasons indicated above, the subject-matter of claim 1 cannot be considered as being obvious to a person skilled in the art in view of the

cited prior art. Therefore claim 1 meets the requirements of Article 56 EPC. Claims 2-4 derive their patentability from claim 1 on which they depend.

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 with the order to grant a patent on the basis of the set of claims 1 to 4 submitted during the oral proceedings and a description to be adapted.

The Registrar: The Chairman:

C. Vodz G. Raths