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Case Number: T 2082/17 - 3.3.07

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Title of invention:
PROCESS FOR PREPARING METAL HYDROXIDES, HYDROXYL ORGANOMETALS AND WHITE CARBON SUITABLE FOR USE IN AYURVEDIC MEDICINE

Applicant:
ICS Green Growing SRL

Headword:
PROCESS FOR PREPARING METAL HYDROXIDES, HYDROXYL ORGANOMETALS AND WHITE CARBON SUITABLE FOR USE IN AYURVEDIC MEDICINE/ICS Green Growing SRL

Relevant legal provisions:
EPC Art. 83, 84

Keyword:
Sufficiency of disclosure - (no)
Claims - clarity (no)

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Case Number: T 2082/17 - 3.3.07

D E C I S I O N
of Technical Board of Appeal 3.3.07
of 22 September 2020

Appellant: (Applicant)	ICS Green Growing SRL Via Lev Tolstoi 27, App. 32 2001 Chisinau (MD)
Representative:	Gervasi, Gemma Notarbartolo & Gervasi S.p.A. Viale Achille Papa, 30 20149 Milano (IT)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 13 April 2017 refusing European patent application No. 10759993.8 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	A. Usuelli
Members:	D. Boulois
	Y. Podbielski

Summary of Facts and Submissions

I. The appeal lies from the decision of the Examining Division refusing European patent application No. 10 759 993.8.

II. The decision was based on the set of claims filed on 13 March 2017.

Claim 1 of the main and only request read as follows:

"1. Process for the preparation of metal hydroxydes, hydroxyl organometals and white carbon, comprising the steps of
I) providing carbon and/or at least one metal;
II) subjecting said carbon and/or at least one metal to electrolysis in an acid solution of 15% to 25% H_2O_2 for a period of time of 24 to 72 hours;
III) subjecting the mixture deriving from step II) to a first cycle of treatment comprising:

a) after the addition of further acid solution of 20% to 30% H_2O_2, letting the mixture to settle for about 48 hours, while stirring the same about every 12 hours;

b) concentrating the mixture deriving from step a) to about 20% of the volume thereof, by subjecting the same to microwave irradiation at a power of 200-270W;

c) bringing to volume by adding osmotic water and stirring;

d) repeating 3 times the steps b)-c) and then repeating the step b);

IV) subjecting the concentrated mixture deriving from step d) to a second cycle of treatment comprising:

e) adding an acid solution of 30% to 40% H_2O_2, and osmotic water;

f) concentrating the mixture deriving from step e) to about 5-10% of the volume thereof, by subjecting the same to microwave irradiation at a power of 400-450W.

g) bringing to volume by adding osmotic water and stirring;

h) repeating 4 times the steps f)-g) and then repeating the step f);

V) subjecting the concentrated mixture deriving from step h) to a third cycle of treatment comprising:

i) adding an acid solution of 40% to 50% H_2O_2 and osmotic water;

l) drying the mixture deriving from step i) by subjecting the same to microwave irradiation at a power of 600-650W;

m) bringing to volume by adding osmotic water and stirring;

n) repeating 3 times the steps l)-m) and then repeating the step l);

VI) subjecting the concentrated mixture deriving from step n) to a fourth cycle of treatment comprising:

o) adding an acid solution of 20% H_2O_2 and osmotic water;

p) drying the mixture deriving from step o) by subjecting the same to microwave irradiation at a power of 700-850W;

q) bringing to volume by adding osmotic water and stirring;

r) repeating 3 times the steps p)-q) and then repeating the step p);

VII) subjecting the concentrated mixture deriving from step r) to a fifth cycle of treatment comprising:

s) adding osmotic water;
t) drying the mixture deriving from step s) by subjecting the same to microwave irradiation at a power of 1000-3000W;
u) bringing to volume by adding osmotic water and stirring;
v) repeating 6 times the steps t)-u)."

III. According to the decision under appeal, the claimed invention was not sufficiently disclosed, contrary to the requirements of Article 83 EPC, with respect to the preparation of (i) Group I-II metal hydroxides, (ii) hydroxyl organometals of Group I-II metals and (iii) white carbon.

The application failed to provide any examples of how to prepare hydroxides of non-heavy metals. While it was plausible that claim 1 could be used to prepare any transition metal hydroxides, it was far from plausible that hydroxides of metals from Groups I-III of the periodic table could be prepared, such as with sodium potassium, caesium or calcium, in view of the explosion risks linked with these metals.

The same objection applied to the preparation of hydroxyl organometals of any metal. Moreover, the applicant had failed to provide an evidence that “white carbon” exists and may be prepared by the claimed process.

The application did also not meet the requirements of Article 84 EPC, in view of the term “white carbon”.

IV. The applicant, ICS Green Growing SRL (hereinafter the appellant) filed an appeal against that decision. With the statement setting out the grounds of appeal dated 9

August 2017, the appellant submitted the following items of evidence:

Test 1001529: calcium and sodium fluorosilicates
Test 1001526: Aluminium and aluminium phosphate
Test 1001531: Hydroxides and hydrate oxides of Al, Na, Ca, Mg
Test 1001538/A: Golden, silver and iron in a single grain
Test 1001539/A: Golden, silver and iron in a single grain and AgCl
Test 1001541/A: Au, Fe tubes as ferrite
Test 1001563 : Pd and Fe

V. A communication expressing the Board's preliminary opinion dated 5 March 2020 was sent to the applicant. In this communication, the Board expressed a negative preliminary view with respect to the requirements of Articles 83 and 84 EPC. The Board also mentioned its difficulties to relate the filed tests to the content of the application, especially the examples of the application as filed.

VI. With a letter dated 26 August 2020, the appellant informed the Board that the applicant had no further information to provide on this case and that it would not attend the scheduled oral proceedings. The appellant also requested a final decision on the basis of the information already provided.

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

The doubts of the examining division concerning the possibility of a risk of an explosion could not be the basis for an objection of lack of sufficiency of

disclosure. The examining division affirmed that anybody, even a student, with the most basic knowledge of chemistry knew this risk, and the applicant was thus wondering why the same student, who knew the problem well, could not image, even with just basic knowledge, which measures to adopt in order to carry out the reaction in a safe manner. If the reaction was well known in the art, so were the safety measures.

Moreover, tests were filed with the grounds of appeal with respect to compounds obtained after treatment according to the process of the present invention as claimed in claim 1. The filed documents were the results of analyses on samples containing different elements as reported.

The analyses confirmed that the samples can be obtained also relating to metals other than silver, gold, palladium and iridium. Consequently, the tests demonstrated that the process of the invention was sufficiently disclosed.

The term "white carbon" was clear from the description as filed, and was prepared in examples 5-7 and reported in figures 5, 6A, 6B and 7. Claim 1 referred to a process with clear technical steps and the process was sufficiently disclosed, independently from the term used to prepare the final product. The name of the final product obtained was irrelevant for the requirement of sufficiency of disclosure of the process. The present invention related to a new and inventive process and aimed to protect a process to obtain a product and not the product per se.

VIII. Requests

The appellant requests that the decision under appeal be set aside and a patent be granted on the basis of the set of claims filed with letter of 13 March 2017.

Reasons for the Decision

1. Tests filed with the statement of grounds of appeal

1.1 Seven "tests" have been filed by the appellant with the statement setting out the grounds of appeal. According to the appellant, said tests are analyses of compounds obtained after treatment according to the process of the present invention as claimed in claim 1, and are the results of a SEM-EDX analysis and quantification analysis obtained by XRD scansion on samples containing different elements as reported in the tables of the single analysis. Specifically, the following tests relate to the characterization of the following compounds:

- test 1001529: calcium and sodium fluorisilicates
- test 1001526: aluminium and aluminium phosphate
- test 1001531: hydroxides and hydrate oxides of Al, Na, Ca, Mg
- test 1001538/A: gold, silver and iron in a single grain
- test 1001539/A: gold, silver and iron in a single grain and AgCl
- test 1001541/A: Au, Fe tubes as ferrite
- test 1001563: Pd and Fe

1.2 It appears however impossible to relate these tests to the content of the application, in particular to the disclosed examples, and to the claimed process.

First, from all filed tests, only the "test 1001531" appears to relate to products obtainable by the claimed process, namely hydroxides and hydrate oxides of Al, Na, Ca, Mg, and none of these hydroxides correspond to the products prepared in the examples of the application. The others tests appear furthermore to concern other compounds than metal hydroxydes, hydroxyl organometals and white carbon as claimed.

Moreover, said tests do not provide any information as to the process parameters used to produce the analysed compounds, and only relate to final products possibly obtainable by the claimed process, without showing how the products are prepared or proving that the analysed products were effectively prepared or could have been prepared by a process as claimed, which was the point objected to and questioned by the examining division in its decision. The decision of the examining division related to a lack of disclosure as regards the claimed process of preparation, and not as regards the existence of metal hydroxides or hydroxyl organometals. Therefore, the tests and explanations provided by the appellant do not provide any answer to the examining division's finding that the invention is not sufficiently disclosed in the application. They can thus not be taken into consideration for the Board's assessment of sufficiency of disclosure.

1.3 In paragraph 6 of its letter of 5 March 2020 the Board expressed its doubts as to the relevance of the tests filed with the statement setting out the grounds of

appeal. The appellant did not submit any substantive argument in reply to the Board's observations.

2. Sufficiency of disclosure

2.1 The claimed invention relates to a process of preparation of metal hydroxides, hydroxyl organometals and white carbon.

2.2 As regards the production of "metal hydroxides", the examples of the patent application show the preparation of specific hydroxides of metals of group 11 of the periodic table, such as copper, silver and gold, and also of palladium and iridium. However, the application does in particular not show any example of how to prepare hydroxides of non-heavy metals, such as hydroxides of metal from Groups I-III. As the examining division mentioned in its decision (cf. point 1.1), it is well-known that the reaction of some metals such as sodium, potassium or caesium in water is highly exothermic and could cause an explosion. This would render highly problematic the preparation of the hydroxides of these metals with the claimed process. There is no teaching with this regard in the application as filed and the appellant did not provide further information apart from arguing that a skilled person would know the measures to be adopted in order to carry out the reaction in a safe manner, because if the reaction was known in the art so were the safety measures. The appellant did, however, not give further explicit technical information or teaching on this point.

There is therefore an insufficient teaching as regards how to prepare any of the claimed metal hydroxides.

2.3 The same applies to the preparation of the claimed hydroxyl organometals. The term "hydroxyl organometals" is indeed very general, in view of the organic part of the compound, and encompasses potentially a great number of possible derivatives, while the description gives only a very limited teaching as to the preparation of said hydroxyl organometals.

Examples 1-4 and 14 disclose indeed the preparation of hydroxyl organometals of respectively Au (examples 1,2, 14), Ag (example 3), Cu (example 4), but said examples do not specify what kind of hydroxyl organometal derivatives are prepared, and what is the final structure of the obtained compounds; it is for instance not explained how the moieties "hydroxyl", "metal" and "organo" are linked together and what the organic part of the compound consists of..

Moreover, examples 1-4 and 14 relate to processes involving the use of the same organic compound, namely vitamin C which might possibly constitute the organic part of the claimed "hydroxyl organometals". Claim 1 covers however the preparation of any hydroxyl organometal compound. There is no instruction on how to carry out the process with an organic compound different than vitamin C.

The Board also notes that carbon appears as the only source of starting organic material used in the process as claimed in claim 1. It is not clear and there is no teaching in the application as filed on how it would be possible to transform carbon in any conceivable organic moiety that should constitute the organic portion of the hydroxyl organometal compound.

The teaching of the present application is therefore incomplete and insufficient, and does not allow a skilled person to determine what is prepared in the application as filed, which organic components have to be used or can be used, and how to put in practice the subject-matter claimed, namely the preparation of any kind of hydroxyl organometals.

2.4 Consequently, the application as filed does not meet the requirements of Article 83 EPC.

3. Main request - Article 84 EPC

The product denominations "white carbon" and "osmotic water" used in claim 1 are unclear and undefined. The description does not give any explanation as to what is meant by these features. Nor did the appellant submit any evidence to show that these expressions would be understood by a person skilled in the art. Thus, the skilled person is not in a position to understand what is meant by the expressions "white carbon" and "osmotic water" and what kind of products are encompassed by them.

Consequently, claim 1 of the main request does not meet the requirements of Article 84 EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

B. Atienza Vivancos A. Usuelli

Decision electronically authenticated