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**Datasheet for the decision
of 6 April 2018**

Case Number: T 2229/16 - 3.3.05

Application Number: 12815085.1

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Language of the proceedings: EN

Title of invention:
SELECTIVE HYDROGENATION APPARATUS FOR BIOLOGICALLY APPLICABLE
LIQUID

Applicant:
MIZ Co., Ltd.

Headword:
Production of hydrogen/MIZ

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

Keyword:
Amendments - intermediate generalisation
Claims - clarity after amendment (no)

Decisions cited:

Catchword:



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Case Number: T 2229/16 - 3.3.05

D E C I S I O N
of Technical Board of Appeal 3.3.05
of 6 April 2018

Appellant: MIZ Co., Ltd.
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 3 June 2016
refusing European patent application No.
12815085.1 pursuant to Article 97(2) EPC**

Composition of the Board:

Chairman E. Bendl
Members: J.-M. Schwaller
R. Winkelhofer

Summary of Facts and Submissions

- I. This appeal lies from the decision of the examining division to refuse European patent application No. 12 815 085.1 on the grounds that claim 1 then on file did not meet the requirements of Articles 84 and 54 EPC.
- II. With its statement of grounds of appeal, the appellant inter alia maintained the claims underlying the contested decision.
- III. In a communication, the board raised issues under Articles 123(2), 83 and 54 EPC.
- IV. With a submission of 23 January 2018, the appellant replaced the former claims with an amended set of four claims, with independent claim 1 reading:
- "1. A method of using a selective hydrogen adding equipment for supplying hydrogen to a fluid suitable to be applied to living organism, comprising:*
- providing a hydrogen generating system that contains a hydrogen generating agent as an essential component;*
 - providing an implement to form hydrogen bubbles that stores the hydrogen generating system and has a gas/liquid separating section including a gas-permeable film or an open-close valve;*
 - providing a closed container to accommodate the hydrogen adding equipment;*
 - storing the selective hydrogen adding equipment in the closed container; and*
 - obtaining a hydrogen-containing fluid through causing the hydrogen generating system and water to generate hydrogen gas together with the hydrogen generating agent to react in the implement and supplying hydrogen*

gas generated in the implement into the fluid via the gas/liquid separating section,

wherein a metal raw material formed from at least one of aluminum, zinc, iron, and cobalt is used as the hydrogen generating agent, and the metal raw material is such that, when it is subjected to a heat generation temperature measurement method which comprises:

reacting 500 mg of the metal raw material and 500 mg of malic acid (or 500 mg of aluminum potassium sulfate when the metal raw material comprises aluminum) in a tube with 500 mg of tap water at a water temperature 25 to 26 degrees C, the water being injected into the tube containing the raw material by using a dropper, and measuring the temperature of the metal raw material,

the measured temperature is below 50 degrees C or requires 5 seconds or more before reaching 50 degrees C, whereby a reaction heat due to hydrogen generating reaction is prevented from being directly transferred to the gas-permeable film or the open-close valve of the gas/liquid separating section."

- V. The board summoned the appellant to oral proceedings and expressed its preliminary opinion that the above claims did not appear to meet the requirements of Articles 84 and 123(2) EPC.
- VI. With a submission of 27 March 2018, the appellant's representative informed the board that it had been instructed not to attend the oral proceedings, and it requested the board to take a decision "on the basis of the present status of the files" [sic].

Reasons for the Decision

1. Allowability of the amendments - Article 123(2) EPC

The feature "the water being injected into the tube [...] by using a dropper" added in claim 1 above has its origin in paragraph [0026] as filed, which reads (origin of the amendment underlined by the board):

"Specifically, the measurement of temperature of metal raw material includes disposing the above hydrogen generating system in a polypropylene test tube of about 16.0 mL volume and about 17x100 mm, then closing it with a cap, and injecting the generating-purpose water using a dropper from a cap opening (an opening of 5 mm diameter herein) previously provided at the center area of the cap. Immediately thereafter, a previously warmed-up digital thermometer (TANITA TT-508: TANITA Corporation) is inserted deeply into the inside of the test tube to contact the thermometer heat sensor unit (4 mm diameter herein) with the metal raw material thereby performing the measurement. Note that, if the diameter of the cap opening and the diameter of the thermometer heat sensor unit is the same, then the cap may possibly fly away due to hydrogen gas generated in the tube, so a space of about 1 mm may have to be provided between the cap opening and the thermometer heat sensor unit."

Since the above paragraph relates to the method for measuring the temperature of the metal raw material, which allows the skilled person to check whether or not a material is suitable as a hydrogen-generating agent for the alleged invention, the other features necessary for accurately measuring the temperature of the metal raw material are essential too, and thus they cannot be

omitted from the claimed subject-matter. The other features in question are in particular:

- the **type** of (digital) thermometer used (here a "TANITA TT-508"), and
- the previous **warm-up** of the thermometer and its insertion into the test tube **to contact the thermometer heat sensor unit with the metal raw material.**

Since these features actively contribute to the accurate measurement of the temperature and so to the characterisation of the material suitable for the claimed method, they are essential to the performance of the invention and are inextricably linked to the other features already defined in claim 1. Hence their omission would for the first time present the skilled person with the information that, contrary to what had originally been disclosed, these features were not necessary in order to carry out the invention. Therefore their omission infringes the requirements of Article 123(2) EPC.

2. Clarity

The meaning of the feature "*whereby a reaction heat due to hydrogen generating reaction is prevented from being directly transferred to the gas-permeable film or the open-close valve of the gas/liquid separating section*" in claim 1 at issue is uncertain, in the sense that it is unclear which technical features of the "heat generation temperature measurement method" referred to are supposed to be covered by said feature. As a result, the claimed subject-matter lacks clarity, contrary to the requirements of Article 84 EPC, which demands *inter alia* that the wording of the claims must be clear.

3. As amended claim 1 does not meet the above requirements of the EPC, the appeal cannot succeed and the decision to refuse the application is to be upheld.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



C. Vodz

E. Bendl

Decision electronically authenticated