

**Internal distribution code:**

- (A)  Publication in OJ  
(B)  To Chairmen and Members  
(C)  To Chairmen  
(D)  No distribution

**Datasheet for the decision  
of 17 April 2012**

**Case Number:** T 2328/09 - 3.3.07  
**Application Number:** 01965667.7  
**Publication Number:** 1325778  
**IPC:** B01J 23/46, B01J 37/18,  
H01M 8/04, H01M 8/06, H01M 8/10,  
C01B 3/58  
**Language of the proceedings:** EN

**Title of invention:**

Method of activating catalyst for carbon monoxide removal,  
catalyst for removing carbon monoxide, method of removing  
carbon monoxide, and method of operating fuel cell system

**Applicant:**

OSAKA GAS CO., LTD.

**Headword:**

-

**Relevant legal provisions:**

EPC Art. 111(1), 123(2)

**Keyword:**

"Amendments - added subject-matter (no)"  
"Decision re appeals - remittal (yes)"

**Decisions cited:**

-

**Catchword:**

-



Case Number: T 2328/09 - 3.3.07

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.07  
of 17 April 2012

**Appellant:**  
(Applicant)

OSAKA GAS CO., LTD.  
1-2, Hiranomachi 4-chome  
Chuo-ku  
Osaka-shi  
Osaka 541-0046 (JP)

**Representative:**

Lemcke, Brommer & Partner  
Patentanwälte  
Bismarckstrasse 16  
D-76133 Karlsruhe (DE)

**Decision under appeal:**

Decision of the Examining Division of the  
European Patent Office posted 9 July 2009  
refusing European patent application  
No. 01965667.7 pursuant to Article 97(2) EPC.

**Composition of the Board:**

**Chairman:** J. Riolo  
**Members:** D. Semino  
M.-B. Tardo-Dino

## Summary of Facts and Submissions

I. The appeal lies from the decision of the examining division dated 9 July 2009 refusing European patent application No. 01 965 667.7. The application as filed comprised 16 claims, claims 1 to 4 reading as follows:

"1. A method of activating a carbon monoxide removing catalyst for removing, through oxidation thereof, carbon monoxide present in a mixture gas containing hydrogen and the carbon monoxide, wherein the catalyst is activated by being caused to contact an inactive gas or a hydrogen-containing inactive gas consisting of less than 50 volume % of hydrogen gas and the remaining volume of inactive gas."

"2. The method of activating a carbon monoxide removing catalyst according to claim 1, wherein said inactive gas contains at least one kind of gas selected from the group consisting of nitrogen gas, helium gas, argon gas and carbon dioxide gas."

"3. The method of activating a carbon monoxide removing catalyst according to claim 1, wherein said hydrogen-containing inactive gas consists of less than 10 volume % of hydrogen gas and the remaining volume of the inactive gas."

"4. The method of activating a carbon monoxide removing catalyst according to claim 1, wherein the activation of the carbon monoxide removing catalyst is effected at from 80°C to 400°C. "

II. The decision was based on a set of 4 claims filed with letter of 5 July 2007. Independent claim 1 according to that set of claims read as follows (additions with respect to original claim 1 are indicated in bold, deletions in strike-through):

"1. A method of activating a carbon monoxide removing **precious metal catalyst in a carbon monoxide removing operation** for **oxidizing/removing**, ~~through oxidation thereof,~~ carbon monoxide ~~present in~~ **from** a mixture gas **by causing the mixture gas and an oxidizer to react on the catalyst, the mixture gas being obtained through a reforming process and** containing hydrogen as a major component thereof and the carbon monoxide, **the catalyst having received a reduction operation at the time of manufacture thereof;**  
**characterized in that**  
**before the carbon monoxide removing operation is effected with using said catalyst which has been reduced by the reducing operation, said reduced carbon monoxide removing catalyst is** ~~wherein the catalyst is activated by being~~ caused to contact an inactive gas or a hydrogen-containing inactive gas consisting of less than 50 volume % of hydrogen gas and the remaining volume of inactive gas, **at a temperature from 80 to 400°C.**"

III. The examining division was of the opinion that several of the features added to claim 1 had no basis in the original application. In particular there was no basis in the application as originally filed for the generalisation of ruthenium, which was the only disclosed precious metal, to any precious metal and for the submission of the catalyst to a reduction operation

at the time of manufacture thereof. The examining division objected also the generalisation in dependent claim 4 and did not consider the amended pages of the description on file, since the applicant did not identify the bases for those amendments. Moreover, novelty and inventive step of the claims were not considered in the decision of the examining division.

IV. The applicant (appellant) filed a notice of appeal against the above decision. With the statement setting out the grounds of appeal the appellant submitted two sets of claims as main and auxiliary requests and amended description pages. With letter of 16 March 2012 it filed two further sets of claims again as main and auxiliary requests.

V. Oral proceedings were held on 17 April 2012. During the oral proceedings, the appellant withdrew the previously filed requests including the amended description pages and filed a set of three claims as main request, which read as follows (additions with respect to original claims 1 to 3 are indicated in bold, deletions in strike-through):

"1. A method of activating a carbon monoxide removing catalyst **prior to its use** for removing, through oxidation thereof, carbon monoxide ~~present in a mixture gas~~ **from a reformed gas obtained by reforming a hydrocarbon or an alcohol and** containing hydrogen **as its major component and containing also** the carbon monoxide, **said carbon monoxide removing catalyst comprising a ruthenium catalyst supported on an alumina support,**  
**characterized in that**

**prior to its use in removing the carbon monoxide,**  
~~wherein the~~ **said carbon monoxide removing** catalyst is  
activated by being caused to contact, **at a temperature**  
**from 80 to 400°C,** an inactive gas or a hydrogen-  
containing inactive gas ~~consisting~~ **that consists** of  
less than 50 volume % of hydrogen gas and the remaining  
volume of inactive gas."

"2. The method of activating a carbon monoxide removing  
catalyst according to claim 1, ~~wherein~~ **characterized in**  
**that** said inactive gas contains at least one kind of  
gas selected from the group consisting of nitrogen gas,  
helium gas, **and** argon gas ~~and carbon dioxide gas.~~"

"3. The method of activating a carbon monoxide removing  
catalyst according to claim 1, ~~wherein~~ **characterized in**  
**that** said hydrogen-containing inactive gas consists of  
less than 10 volume % of hydrogen gas and the remaining  
volume of the inactive gas."

VI. The appellant argued essentially that claim 1 of the  
main request was based on original claims 1, 4 and 7  
and on the disclosures on original pages 1 ("Technical  
Field), 5 (lines 20 and following), 8 (lines 16 and  
following) and 9 (lines 12 and following) and that  
claims 2 and 3 of the main request corresponded to  
original claims 2 and 3 with the deletion of carbon  
dioxide from the list of inactive gases in original  
claim 2. On that basis fulfilment of the requirements  
of Article 123(2) EPC should be acknowledged and the  
case should be remitted to the first instance for  
dealing with the issues of novelty and inventive step,  
since there had not yet been any detailed analysis of

the claimed invention in view of the pertinent prior art before the examining division.

- VII. The appellant requested that the decision under appeal be set aside and the case be remitted to the department of first instance for dealing with novelty and inventive step on the basis of the main request filed during the oral proceedings on 17 April 2012.

### **Reasons for the Decision**

1. The appeal is admissible.
2. *Main Request*
  - 2.1 Claim 1 of the main request to be decided upon is completely reworded with respect to claim 1 of the request on which the appealed decision was based. In particular, it does not contain the features which were mainly objected by the examining division, namely the definition of the catalyst as a "precious metal" catalyst and the specification that the catalyst is submitted to a reduction operation at the time of preparation thereof. Moreover, claim 4 of the old request is no longer present in the main request.
  - 2.2 In view of this the grounds under Article 123(2) EPC on which the refusal of the application was based no longer hold.
  - 2.3 Claim 1 of the main request derives from original claim 4 as dependent on claim 1 (i.e. claim 1 with the specification of the temperature range for the

activation step) with the addition of specific definitions for the mixture gas containing hydrogen and carbon monoxide from which carbon monoxide is removed (as a "reformed gas obtained by reforming a hydrocarbon or an alcohol and containing hydrogen as its major component and containing also the carbon monoxide") and for the carbon monoxide removing catalyst to be activated ("said carbon monoxide removing catalyst comprising a ruthenium catalyst supported on an alumina support").

- 2.4 The specific definition of the mixture gas according to claim 1 of the main request is disclosed in the first paragraph of the application as filed (page 1, lines 11-16 in the section "Technical field") for the invention in its broadest scope. The definition of the carbon monoxide removing catalyst as in claim 1 of the main request is disclosed in all instances in the description in which the catalyst is exemplified (page 7, lines 26-27; page 21, lines 13-14; all examples). The cited passages give therefore basis for the addition of the two features to any embodiment of the invention, including the one of original claim 4.
- 2.5 In addition, claim 1 of the main request includes a reformulation which specifies that the activation of the catalyst takes place "prior to its use" as carbon monoxide removing catalyst. Since the common understanding of the term "activation" in the catalyst field is to make the catalyst active, so that it can be thereafter employed to catalyse chemical reactions, such a reformulation does not add any new content to the amended claim 1 with respect to the original one.



2.6 Claims 2 and 3 of the main request correspond to original claims 2 and 3, wherein in claim 2 one element (carbon dioxide gas) out of a single list of four inactive gases has been deleted. Such a deletion limits the scope of the claim without identifying any undisclosed new combination and therefore it cannot be objected under Article 123(2) EPC.

2.7 For these reasons, claims 1 to 3 of the main request meet the requirements of Article 123(2) EPC.

### 3. *Remittal*

3.1 The examining division decided that the subject-matter of claims 1 and 4 of the request filed before it did not meet the requirements of Article 123(2) EPC and, in view of this, correctly did not address *inter alia* the issues of novelty and inventive step.

3.2 The claims of the main request currently on file fulfil instead the requirements of Article 123(2) EPC and therefore their patentability *inter alia* in view of the available prior art needs to be addressed.

3.3 Pursuant to Article 111(1) EPC the Board of Appeal may either exercise any power within the competence of the department which was responsible for the decision or remit the case for further prosecution.

3.4 In a case such as the one at hand, where essential questions regarding the patentability of the claimed subject-matter have not yet been examined and decided by the department of first instance, the case must normally be remitted to the first instance, so that the

outstanding issues may be properly examined and the applicant's right to the double instance guaranteed.

- 3.5 Thus, in view of the above considerations and of the request for remittal of the appellant, the Board considers it appropriate to remit the case to the examining division for further prosecution on the basis of the claims according to the main request.
4. In view of the withdrawal of the amended description pages by the appellant at the oral proceedings, there is at present no amended description adapted to the claims according to the main request. However, since the present claims cannot be considered yet as ready for grant, the Board does not consider it reasonable to require an adapted description at this stage.

## **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 for further prosecution.

The Registrar

The Chairman

L. Fernandez-Gomez

J. Riolo