

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

| | | | |
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| Applicant's or agent's file reference P643221P0 | FOR FURTHER ACTION | | See item 4 below |
| International application No. PCT/JP2013/001277 | International filing date (<i>day/month/year</i>) 01 March 2013 (01.03.2013) | Priority date (<i>day/month/year</i>) 10 April 2012 (10.04.2012) | |
| International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237 | | | |
| Applicant PANASONIC INTELLECTUAL PROPERTY MANAGEMENT CO., LTD. | | | |

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|--|-------------------------------------|---|---------------------|--------------------------|------------|----------|--------------------------|-------------|--|--------------------------|------------|----------------------------|-------------------------------------|-----------|---|--------------------------|------------|-------------------------|--------------------------|-------------|--|-------------------------------------|--------------|---|
| <p>1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.</p> | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>3. This report contains indications relating to the following items:</p> <table> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table> <p>4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).</p> | <input checked="" type="checkbox"/> | Box No. I | Basis of the report | <input type="checkbox"/> | Box No. II | Priority | <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability | <input type="checkbox"/> | Box No. IV | Lack of unity of invention | <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement | <input type="checkbox"/> | Box No. VI | Certain documents cited | <input type="checkbox"/> | Box No. VII | Certain defects in the international application | <input checked="" type="checkbox"/> | Box No. VIII | Certain observations on the international application |
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | Box No. II | Priority | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention | | | | | | | | | | | | | | | | | | | | | | |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | Box No. VI | Certain documents cited | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application | | | | | | | | | | | | | | | | | | | | | | |
| <input checked="" type="checkbox"/> | Box No. VIII | Certain observations on the international application | | | | | | | | | | | | | | | | | | | | | | |

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| | Date of issuance of this report 14 October 2014 (14.10.2014) |
| The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland | Authorized officer Mineko Mohri |
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PATENT COOPERATION TREATY

TRANSLATION

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

| | |
|-------------------------------------|-------------------|
| Date of mailing (day/month/year) | 28.05.2013 |
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Applicant's or agent's file reference
P643221P0

FOR FURTHER ACTION
See paragraph 2 below

| | | |
|---|---|---|
| International application No. PCT/JP2013/001277 | International filing date (day/month/year) 01.03.2013 | Priority date (day/month/year) 10.04.2012 |
|---|---|---|

International Patent Classification (IPC) or both national classification and IPC
C01B3/34 (2006.01) i, H01M8/04 (2006.01) i, H01M8/06 (2006.01) i

Applicant
PANASONIC CORPORATION

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

| | | |
|--|------------------------------------|--------------------|
| Name and mailing address of the ISA/JP | Date of completion of this opinion | Authorized officer |
| Facsimile No. | | Telephone No. |

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2013/001277

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - the international application in the language in which it was filed
 - a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).
2. This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:
 - a. (means)
 - on paper
 - in electronic form
 - b. (time)
 - in the international application as filed
 - together with the international application in electronic form
 - subsequently to this Authority for the purposes of search
4. In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

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| International application No. PCT/JP2013/001277 |
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| | |
|------------------|---|
| Box No. V | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
|------------------|---|

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|-------------------------------|--|--------------------|-----|
| 1. Statement | | | |
| Novelty (N) | | Claims <u>1-11</u> | YES |
| | | Claims _____ | NO |
| Inventive step (IS) | | Claims <u>1-11</u> | YES |
| | | Claims _____ | NO |
| Industrial applicability (IA) | | Claims <u>1-11</u> | YES |
| | | Claims _____ | NO |

| | |
|--------------------------------|--|
| 2. Citations and explanations: | |
|--------------------------------|--|

Document 1: JP 2010-195623 A (PANASONIC CORP.) 09
September 2010, entire text

Document 2: JP 2007-126330 A (T. RAD CO., LTD.) 24 May
2007, entire text

Document 3: JP 2010-280756 A (TOSHIBA CORP.) 16
December 2010, entire text

Document 4: JP 2008-016340 A (NIPPON OIL CORP.) 24
January 2008, entire text

Document 5: JP 2000-095504 A (MATSUSHITA ELECTRIC
WORKS, LTD.) 04 April 2000, entire text

Document 6: JP 2007-055868 A (FUJI ELECTRIC HOLDINGS
CO., LTD.) 08 March 2007, entire text

Document 7: JP 2010-058995 A (TOKYO GAS CO., LTD.) 18
March 2010, entire text

The invention as in claims 1-11 is not described in any of the documents cited in the ISR, and could not be easily conceived of by a person skilled in the art.

None of the documents describes a method for operating a hydrogen generation device, wherein a hydro-desulfurization unit that is to be heated by heat

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2013/001277

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement

transfer from a hydrogen generator is controlled in such a manner that the operation of feeding a raw material to the hydrogen generator after a halt on the generation of a hydrogen-containing gas in the hydrogen generator is not carried out unless the hydro-desulfurization unit has a temperature at which the deposition of carbon from the raw material is suppressed.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2013/001277

Box No. VIII **Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Although claim 11 contains the wording the "aforementioned operation", an "operation" corresponding thereto is not written prior to the wording. Thus, the invention as in claim 11 is inconsistent, and therefore is not clear.

In addition, in Box V, the opinion about novelty and an inventive step was established on the assumption that the invention as in claim 11 cites claim 10.