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Declarations under Rule 4.17:

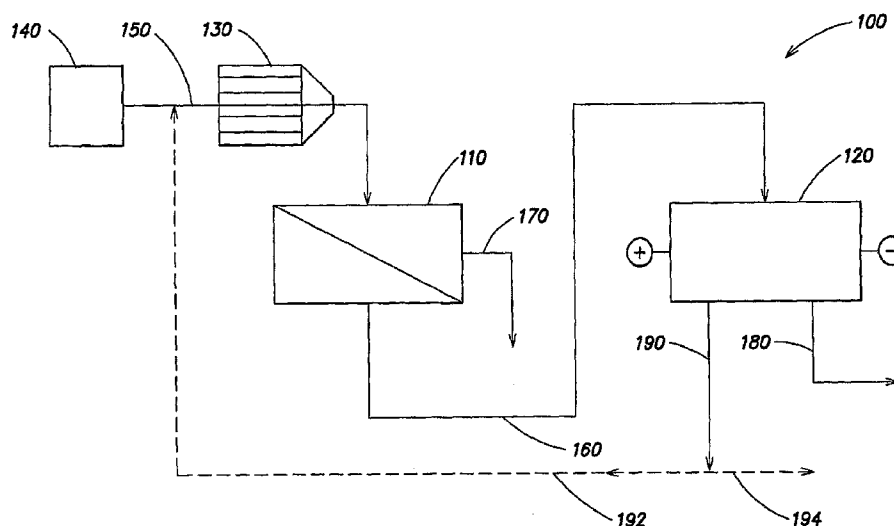
- as to the identity of the inventor (Rule 4.17(i))
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

- with international search report

[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR DESALINATION



(57) Abstract: A method and apparatus for purifying water are provided. A feed water such as seawater can be fed to a filter such as a microporous or nanofiltration membrane (110) to produce a permeate (160) that can, in turn, be fed to an electrodeionization (120) system to produce fresh water.

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— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER

INV. C02F1/469 C02F1/44 B01D61/02 B01D61/48

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

C02F B01D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 075 868 A (KURITA WATER IND LTD [JP]) 14 February 2001 (2001-02-14) the whole document	1-7
X	US 2006/091077 A1 (HAAS WILLIAM E [US] ET AL) 4 May 2006 (2006-05-04) the whole document	8-11
X	PRESSRELEASE ON HTTP://WWW.AFFORDABLEDESAL.COM/, [Online] 4 May 2006 (2006-05-04), XP002477042 Retrieved from the Internet: URL:http://www.affordabledesal.com/home/ne ws/ADC%20Sets%20Low%20Energy%20Record%205- 8-06.pdf> [retrieved on 2008-04-16] the whole document	12-18,23

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

Z document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

International application No

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>WANG JIANYOU ET AL: "Study of the electrodeionization process - high-purity water production with a RO/EDI system" DESALINATION, ELSEVIER, AMSTERDAM, NL, vol. 132, no. 1-3, 3 October 2000 (2000-10-03), pages 349-352, XP002287778 ISSN: 0011-9164 the whole document</p>	19-22, 24,25
A	<p>US 2005/263457 A1 (WILKINS FREDERICK C [US] ET AL), 1 December 2005 (2005-12-01) the whole document</p>	1-25
A	<p>WO 2004/013048 A (UNIV SOUTH CAROLINA [US]; DAVIS THOMAS A [US]) 12 February 2004 (2004-02-12) the whole document</p>	1-25
A	<p>WO 2005/113120 A (GE MOBILE WATER INC [US]; QUEEN ABEL [US]; HAAS WILLIAM [US]) 1 December 2005 (2005-12-01) the whole document</p>	1-25
A	<p>WO 2006/031732 A (UNIV SOUTH CAROLINA [US]; DAVIS THOMAS A [US]) 23 March 2006 (2006-03-23) the whole document</p>	1-25

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2007/018815

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search reportcovers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-11

Water desalination process and apparatus using a nanofiltration fluidly connected to an electrodeionization device.

2. claims: 12-18,23

Energy efficient seawater treatment method producing water having a TDS value under 1000 ppm.

3. claims: 19-22,24,25

Water treatment method for producing water having a TDS value under 1000 ppm, wherein a concentration of monovalent species is reduced and a byproduct stream is produced.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2007/018815

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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