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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 (Rule 48.2(h))

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(54) Title: WASTEWATER PROCESSING SYSTEMS FOR POWER PLANTS AND OTHER INDUSTRIAL SOURCES

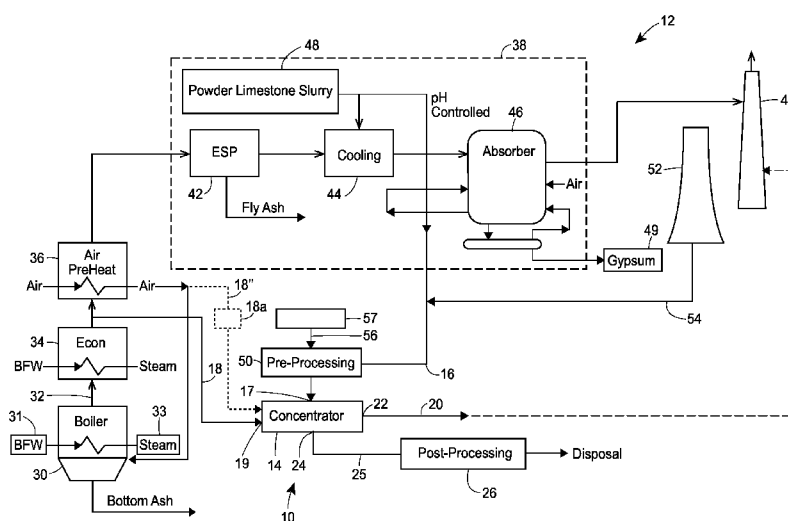


FIG. 1

(57) Abstract: Methods, systems, and/or apparatuses for treating wastewater produced at a thermoelectric power plant, other industrial plants, and/or other industrial sources are disclosed. The wastewater is directed through a wastewater concentrator including a direct contact adiabatic concentration system. A stream of hot feed gases is directed through the wastewater concentrator. The wastewater concentrator mixes the hot feed gases directly with the wastewater and evaporates water vapor from the wastewater. The wastewater concentrator separates the water vapor from remaining concentrated wastewater. A contained air-water interface liquid evaporator may be arranged to pre-process the wastewater before being treated by the wastewater concentrator.

WO 2014/124080 A3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2014/015007**A. CLASSIFICATION OF SUBJECT MATTER****C02F 9/08(2006.01)i, C02F 1/04(2006.01)i, C02F 1/28(2006.01)i**

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 9/08; C02F 1/16; C02F 1/12; C02F 1/52; C02F 1/04; B01D 45/08; B01D 53/26; B01D 1/14; B01D 1/00; C02F 1/28

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords: wastewater, concentrator, adiabatic, direct contact, hot feed gases, waste heat, separator, thermoelectric plant**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2010-0236724 A1 (DUESEL, JR., B. F. et al.) 23 September 2010 See abstract; claim 1; paragraphs [0002], [0029]-[0033], [0036], [0037], [0080], [0081]; and figure 1.	1-3, 7, 15
A	US 2009-0020481 A1 (BAILIE, R. E. et al.) 22 January 2009 See abstract; and figures 1, 6.	1-3, 7, 15
A	US 2012-0186451 A1 (DUESEL, JR., B. F. et al.) 26 July 2012 See abstract; claims 1, 3; and paragraphs [0017]-[0019].	1-3, 7, 15
A	US 2011-0174447 A1 (DUESEL, JR., B. F. et al.) 21 July 2011 See abstract; and claim 11.	1-3, 7, 15
A	US 2011-0108471 A1 (PAGE, J. W. et al.) 12 May 2011 See abstract; and claim 1; and paragraphs [0010], [0011], [0018].	1-3, 7, 15

 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 application or patent 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

"&" document member of the same patent family

Date of the actual completion of the international search

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Name and mailing address of the ISA/KR

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INTERNATIONAL SEARCH REPORTInternational application No.
PCT/US2014/015007**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.: 4-6, 8-14, 16-20
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:

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of any additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers 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.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2014/015007

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Information on patent family members

International application No.

PCT/US2014/015007

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