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English

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English

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,

(54) Title: SYSTEMS AND METHODS FOR TESTING BIOCIDES

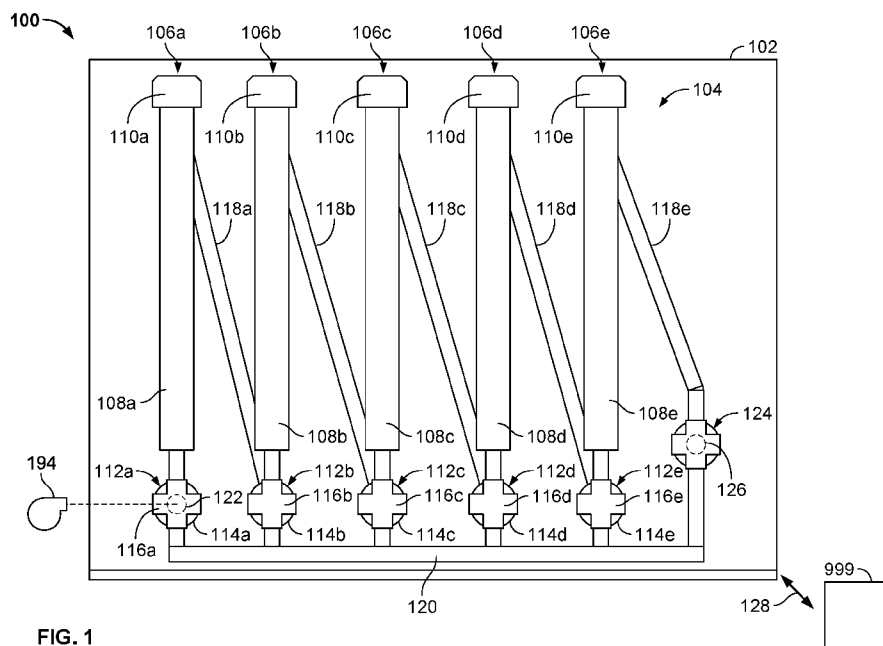


FIG. 1

(57) Abstract: A biocide testing system includes test columns, a bypass tube, control valves, and a control system. Each test column includes biocide test coupons. The bypass tube is fluidly coupled to each of the test columns. Each control valve is coupled between a respective test column and the bypass tube. The control system performs operations including: controlling the control valves to fluidly couple the test columns to a water source; controlling a pump to circulate water from the water source into the test columns to immerse each test coupon in water; controlling the control valves to fluidly isolate the test columns from the water source and to fluidly isolate each test column from the other test columns; controlling a particular control valve to fluidly couple a particular test column to a biocide source; and controlling the pump to circulate biocide from the biocide source into the particular test column to immerse the test coupons in the particular test column in biocide.

HR, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN,
KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD,
ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO,
NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW,
SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

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- *with international search report (Art. 21(3))*
- *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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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2021/041241

A. CLASSIFICATION OF SUBJECT MATTER
INV. G01N33/50 B01L3/00 C12M1/12 C12Q1/18
ADD. G01N17/00

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)
G01N B01L C10G C12M C12Q

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 practicable, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 2020 024144 A (TORAY INDUSTRIES) 13 February 2020 (2020-02-13) paragraphs [0072] - [0074] paragraphs [0110], [0112]; figure 15 paragraph [0134] <p style="text-align: center;">-----</p>	1-8
A	US 6 361 963 B1 (SMITH KELLY S [US] ET AL) 26 March 2002 (2002-03-26) column 4, lines 16-18, 30-44 column 4, line 54 - column 5, line 48 column 6, lines 43-54 <p style="text-align: center;">-----</p>	1-8

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
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Date of the actual completion of the international search 15 October 2021	Date of mailing of the international search report 23/12/2021
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer <p style="text-align: center;">Marzocchi, Olaf</p>
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2021/041241

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 all searchable 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 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.:

1-8

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: 1-8

A fluidic system with containers operable in series or parallel

2. claims: 9-17

Testing effectiveness of biocides

3. claims: 18-22

Applying biocides to test coupons

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2021/041241

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 2020024144	A	13-02-2020	NONE

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