

1) Family number: 11732008 (US5368748A)

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Title: GROWTH REGULATION OF ZEBRA MUSSELS THROUGH MAGNETIC WATER TREATMENT

Abstract: A method and apparatus in which water is magnetically treated to retard the growth of zebra mussels in water systems, thereby reducing the requirements and cost of water-system maintenance and the quantity of toxic chemical treatments released to the environment. The method includes removing a volume of water from a zebra mussel infested environment, magnetically treating the water, then returning the treated water back to the environment. The apparatus includes a permanent magnet of alternating polarity to form a magnetic field through which the water is treated.

Classifications:

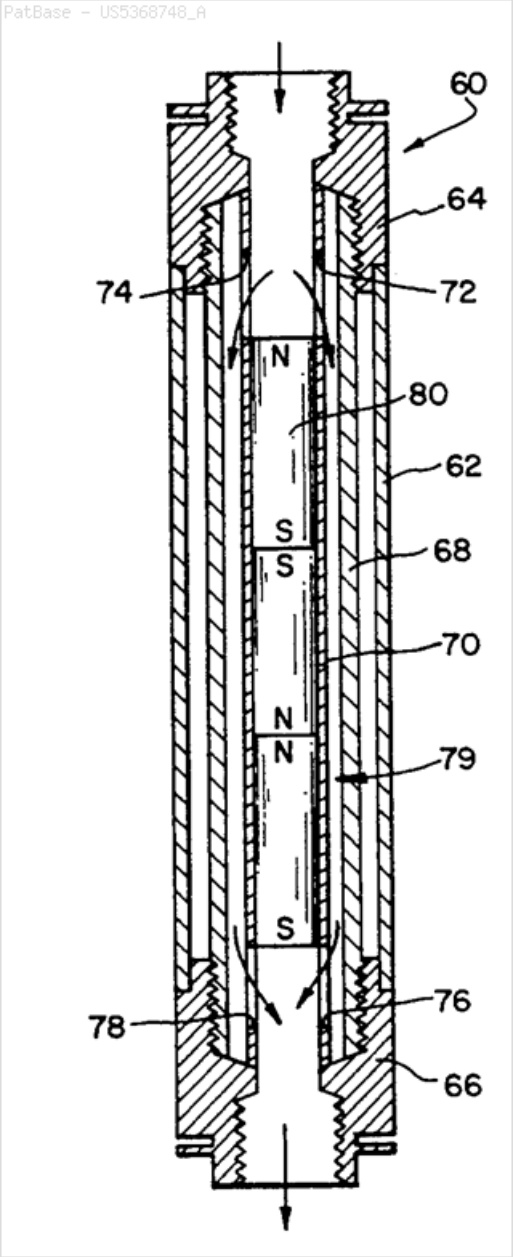
International (IPC 8-9): C02F1/48 (Advanced/Invention);
C02F1/48 (Core/Invention)

International (IPC 1-7): C02F01/48 C02F1/48

CPC: Y10S210/931 C02F1/481

European: C02F1/48A

US: 210/167 210/167.29 210/194 210/222 210/416.1 210/695 210/748
210/764 210/931 422/22



Family:

Publication number	Publication date	Application number	Application date
CA2163912 AA	19960529	CA19952163912	19951128
MX9504947 A1	19970131	MX19950004947	19951128
US5368748 A	19941129	US19940197928	19940217
US5534156 A	19960709	US19940345137	19941128
US5540835 A	19960730	US19940345135	19941128

Priority:US19940197928 19940217
CA19952163912 19951128

US19940345137 19941128

US19940345135 19941128

Probable Assignee:

ZM LLC

Assignee(s): (std):

MAGNATECH CORP ; SANDERSON CHARLES H

Assignee(s):

ZM LLC

Inventor(s): (std):

SANDERSON CHARLES H

Inventor(s):

CHARLES H SANDERSON

Agent(s):

MCCARTHY TETRAULT LLP

2) Family number: 34354112 (US2009101557A)

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Title: DEVICE AND METHOD FOR PRODUCING MEDICAL GRADE WATER**Abstract:** A device for producing medical grade water in spacecrafts has a heat exchange unit which initially heats a water supply before being channeled to a membrane filter module which separates the water supply into liquid retentate and purified gaseous permeate.**Classifications:****International (IPC 8-9):** B01D3/10 B01D61/36 B01D63/00 C02F1/02

C02F103/04 (Advanced/Invention);

C02F103/04 (Advanced/Non-invention);

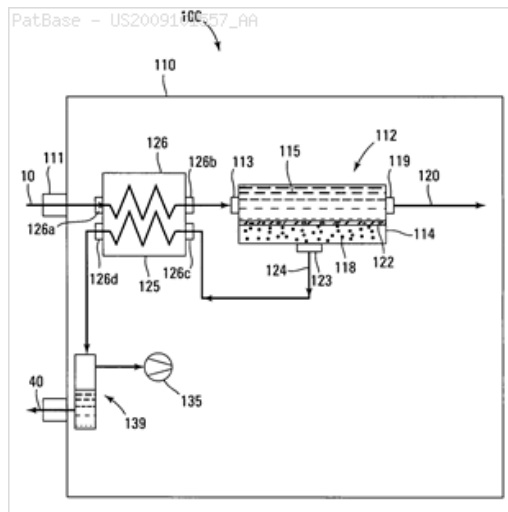
C02F1/02 (Core/Invention)

CPC: B01D61/362 B01D2311/04 B01D2311/103 B01D2313/22

B01D2313/38 C02F1/02 C02F1/444 C02F2103/026

European: B01D61/36B C02F1/44D L01D311/04 L01D311/10B

L01D313/22 L01D313/38 M02F1/02 M02F103/02D

US: 210/181**Family:**

Publication number	Publication date	Application number	Application date
US2009101557 AA	20090423	US20060660171	20060918
WO07035566 A2	20070329	WO2006US36171	20060918
WO07035566 A3	20070614	WO2006US36171	20060918

Priority:

US20050718039P 20050919

US20060660171 20060918

WO2006US36171 20060918

Probable Assignee: NASA**Assignee(s):** (std):

NASA ; T3 SCIENT LLC ; TSAI CHUNG YI A

Assignee(s):

T3 SCIENTIFIC LLC

Inventor(s): (std):

TSAI CHUNG YI A

Agent(s):

T3 SCIENTIFIC LLC

Designated states:

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3) Family number: 42154114 (US2008227680A)

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Title: AQUEOUS OZONE SOLUTION FOR OZONE CLEANING SYSTEM**Abstract:** A method of making an aqueous ozone solution for an industrial cleaning system is described. The method includes providing a reaction vessel for entraining ozone gas in an aqueous solution. The reaction vessel includes a conical-shaped surface having a two or more edges or ridges. The conical-shaped surface defines an interior, and two or more edges or ridges are in contact with the interior. The reaction vessel is in fluidic communication with a supply of water. The reaction vessel is in fluidic communication with a supply of a first aqueous ozone solution. The first aqueous ozone solution is directed to the conical-shaped surface. Water is directed to the conical-shaped surface, and the water and the first aqueous ozone solution are mixed to form a second aqueous ozone solution. Compositions for aqueous ozone solutions are also described. The aqueous ozone solution contains approximately 1 part by volume water mixed with approximately 4 parts by volume to approximately 9 parts by volume of a first aqueous ozone solution to form a second aqueous ozone solution that has an oxidation reaction potential of up to approximately 2.6. The second aqueous ozone solution has an ozone concentration of up to approximately 20 ppm.**Classifications:****International (IPC 8-9):** A01N59/00 A01P1/00 A61L2/16 A61L2/18

PatBase - US2008227680_AA

TO GZONE DESTROYER

300

TO GZONE DESTROYER

405 CONTACT TANK

440 CONDENSER

460 DRAIN

480 SEPARATOR

500 PUMP

305 MASS FLOW CONTROLLER

420 REACTION VESSEL

430 MASS FLOW MONITOR

410 PRESSURE TRANSDUCER

400 VENTURI

310 GAS STREAM SUPPLY

350 GAS STREAM MONITOR

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Agent(s): GRIFFITH HACK; BCF LLP; GOWLING LAFLEUR HENDERSON LLP; SAWYER FRANCOIS; HARRISON GODDARD FOOTE; WENPING AND CO; HASTINGS AND CO; TAMURA YASUO; SAMEJIMA MUTSUMI; GONJOU KEIICHI; YOSHIDA TAMAKI; POLSINELLI SHALTON FLANIGAN SUELTHAUS PC; POLSINELLI SHUGART PC; POLSINELLI SHUGART PC; BRIAN B; POLSINELLI PC; DIEKHOFF BRIAN B ET AL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

4) Family number: 30515131 (US2004079700A)

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Title: PRODUCTION OF WATER FOR INJECTION USING REVERSE OSMOSIS

Abstract: A method and system for providing Water for Injection using reverse osmosis. Water for Injection can be produced by reverse osmosis and the reverse osmosis membrane can be kept in a constantly self-sanitizing condition. One way of obtaining a constantly self-sanitizing condition is to maintain the reverse osmosis membrane at an elevated temperature during production of Water for Injection.

Classifications:

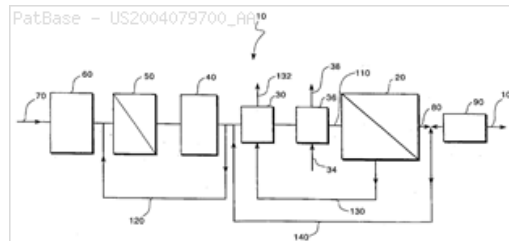
International (IPC 8-9): A61K9/08 B01D61/02 B01D61/04 B01D61/08 B01D61/10 B01D61/16 B01D65/00 B01D65/02 B01D65/10 C02F1/02 C02F1/44 (Advanced/Invention); A61K9/08 B01D61/02 B01D61/16 B01D65/00 C02F1/02 C02F1/44 (Core/Invention)

International (IPC 1-7): A61K47/02 A61K49/04 A61K9/00 B01D51/02 B01D61/02 C02F1/44

CPC: B01D65/08 B01D2321/08 B01D61/02S A61K9/08 B01D61/022 B01D61/04 B01D61/08 B01D61/10 B01D65/022 B01D65/102 B01D2311/04 C02F1/02 C02F1/441 C02F2103/026

European: A61K9/08 B01D61/02B B01D61/02D B01D61/04 B01D61/08 B01D61/10 B01D65/02B B01D65/10B C02F1/02 C02F1/44B L01D311/04 M02F1/44B M02F103/02D

US: 210/149 210/181 210/184 210/184S 210/195.2 210/257.2 210/257.200S 210/321.6 210/321.69 210/321.690S 210/636 210/652 210/742 210/764 210/774 210/806 210/806S 210/85 210/96.2 210/96.200S 73/38 73/38S



Family:

Publication number	Publication date	Application number	Application date
AU2003284916 AA	20040513	AU20030284916	20031023
US2004079700 AA	20040429	US20020278714	20021023
US2005121388 AA	20050609	US20050033696	20050112
US7371319 BB	20080513	US20050033696	20050112
US7501061 BB	20090310	US20020278714	20021023
WO04037726 A1	20040506	WO2003US33818	20031023

Priority:

US20020278714 20021023 WO2003US33818 20031023 US20050033696 20050112

Probable Assignee: EVOQUA WATER TECHNOLOGIES LLC

Assignee(s): (std): ARBA JOHN ; JHA ANIL ; ZOCCOLANTE GARY ; UNITED STATES FILTER CORP ; SIEMENS WATER TECHNOLOGIES HOL ; WOOD JONATHAN ; SIEMENS WATER TECH HOLDG CORP

Assignee(s): SIEMENS WATER TECHNOLOGIES LLC ; USFILTER CORP ; SIEMENS WATER TECHNOLOGIES HOLDING CORP ; SIEMENS IND INC ; CREDIT SUISSE CAYMAN ISLANDS BRANCH COLLATERAL AGENT AG AS ; EVOQUA WATER TECHNOLOGIES LLC

Inventor(s): (std): ARBA JOHN ; ZOCCOLANTE GARY ; JHA ANIL ; WOOD JONATHAN

Inventor(s): GARY ZOCCOLANTE ; JOHN ARBA ; JONATHAN WOOD ; ANIL JHA

Agent(s): WOLF GREENFIELD AND SACKS PC FEDERAL RESERVE PLAZA

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MW MX MZ NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

5) Family number: 48692177 (US2011079510A)

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Title: ELECTROCHEMICAL LIQUID TREATMENT CELL WITH MODULAR CONSTRUCTION

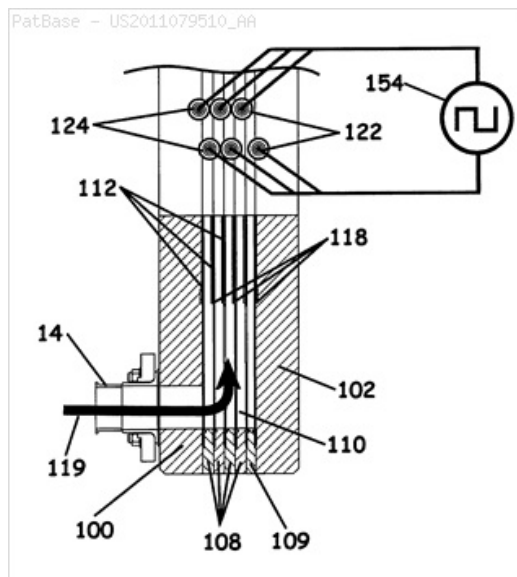
Abstract: A cell for direct treatment of liquid using electrolysis uses a modular construction of electrode plates and spacer assemblies positioned between end plates. Changes in the liquid flow capacity of the cell may be made by changing the number of module housing sections and electrode plate assemblies. The design includes electrode plates that lock into a mating module housing section to resist the pressure of the fluid being treated. The design further provides for multiple fluid flow paths and for automatic cleaning of the cell using standard clean-in-place methods.

Classifications:

International (IPC 8-9): A01J7/00 A23L3/32 A61L2/03 C02F1/00 C02F1/461 C02F1/467 C25B1/04 C25B11/02 C25B15/00 C25B15/02 C25B9/00 C25B9/02 C25B9/06 C25B9/20 C25C7/00 C25C7/02 (Advanced/Invention); C02F101/30 C02F103/22 C02F103/32 C02F103/34 C02F103/42 (Advanced/Non-invention)

CPC: C02F1/4672 A23L3/32S A61L2/03S C02F1/46104 C02F1/4674 C02F2001/46142 C02F2101/30S C02F2103/22 C02F2103/32 C02F2103/34S C02F2103/42 C02F2201/00S C02F2201/4611 C02F2201/4611S C02F2201/4613 C02F2209/04 C02F2209/06 C02F2209/29 C02F2301/04S C02F2301/046 C02F2303/04 Y02E60/366

European: A23L3/32D A61L2/03E C02F1/461B C02F1/467B
M02F1/461B2J2B M02F1/467B2 M02F101/30E M02F103/22 M02F103/32
M02F103/34P M02F103/42 M02F201/00D2 M02F201/461B2
M02F201/461B4 M02F201/461B6B2 M02F209/04 M02F209/06 M02F209/29
M02F301/04B M02F301/04D M02F303/04
US: 204/228.1 204/228.100S 204/228.3 204/228.300S 204/228.6
204/228.600S 204/229.6 204/229.600S 204/269 204/278.5 204/278.500P
204/280 204/288 204/288.2 204/288.4 204/288.5 204/289 205/743
205/744 205/788 205/788S



Family:

Publication number	Publication date	Application number	Application date
CA2776154 AA	20110407	CA20102776154	20101001
CA2776175 AA	20110407	CA20102776175	20101001
CA2776176 AA	20110407	CA20102776176	20101001
US2011079510 AA	20110407	US20100895253	20100930
US2011079520 AA	20110407	US20100895197	20100930
US2011108438 AA	20110512	US20100895314	20100930
US8961751 BB	20150224	US20100895253	20100930
WO11041652 A2	20110407	WO2010US51086	20101001
WO11041652 A3	20110630	WO2010US51086	20101001
WO11041658 A1	20110407	WO2010US51093	20101001
WO11041661 A1	20110407	WO2010US51097	20101001

Priority:

US20090248077P 20091002 US20100895197 20100930 US20100895253 20100930
US20100895314 20100930 WO2010US51097 20101001 WO2010US51086 20101001
WO2010US51093 20101001

Probable Assignee: BIOIONIX INC

Assignee(s): (std): BAHR DENNIS E ; BIOIONIX INC ; BIOLONIX INC ; CHOWDHURY AJIT K ; HALE BRIAN R ; MARSCHKE KARL W ; MILLER MYRON F ; TRETHEWAY JAMES A ; VOGEL JEREMY J

Inventor(s): (std): MILLER MYRON F ; TRETHEWAY JAMES A ; BAHR DENNIS E ; MARSCHKE KARL W ; VOGEL JEREMY J ; CHOWDHURY AJIT K ; HALE BRIAN R

Agent(s): EQUINOX; BOYLE FREDRICKSON SC; BAXTER KEITH M

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

6) Family number: 31169194 (US2001004461A)

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Title: CONTINUOUS PROCESSES FOR PREPARING CONCENTRATED AQUEOUS LIQUID BIOCIDAL COMPOSITIONS

Abstract: The process involves (a) continuously forming bromine chloride from separate feed streams of bromine and chlorine by maintaining said streams under automatic feed rate control whereby the streams are continuously proportioned to come together in equimolar amounts to form bromine chloride; (b) continuously forming an aqueous product having an active bromine content of at least 100,000 ppm (wt/wt), a pH of at least 7, and an atom ratio of nitrogen to active bromine greater than 0.93:1 by continuously feeding into mixing apparatus separate feed streams of (1) bromine chloride formed in (a), and (2) an aqueous solution of alkali metal salt of sulfamic acid, under automatic feed rate control whereby the feed streams are continuously proportioned to come together in amounts that produce an aqueous product having an active bromine content of at least 100,000 ppm (wt/wt), a pH of at least 7, and an atom ratio of nitrogen to active bromine from (1) and (2) greater than 0.93:1; and, (c) withdrawing said aqueous product from said mixing apparatus at a rate sufficient to enable the continuous feeding in (a) and (b) to be maintained.

Classifications:

International (IPC 8-9): A01N A01N25/00 A01N25/02 A01N25/08
A01N25/14 A01N25/22 A01N33/08 A01N37/00 A01N39/00 A01N41/06
A01N41/08 A01N59/00 A01N59/02 A01N59/08 A01P A01P1/00 A01P3/00
A61K31/18 A61K31/185 A61K33/04 A61K33/14 A61N5/10 C01B7/09
C01B7/24 C02F1/50 C02F1/76 G09F3/10 (Advanced/Invention);
A01N25/02 A01N25/22 A01N59/00 C02F1/50 C02F1/76 (Advanced/Non-invention);
A01N25/02 A01N25/08 A01N25/22 A01N41/00 A01N59/00 A01N59/02
A01N59/08 A01P1/00 C02F1/50 C02F1/76 (Core/Invention);
C02F1/50 (Core/Non-invention);

A01N A01P (Subclass/Invention)

International (IPC 1-7): A01N25/02 A01N25/22 A01N3/900 A01N33/08 A01N39/00 A01N41/08 A01N5/900 A01N5/902 A01N5/908 A01N59/00 A01N59/02 A01N59/08 A61K33/00 A61K33/04 A61K33/14 C01B7/24 C02F1/50 C02F1/76

CPC: C02F2103/023 C02F2103/28 G09F3/10 Y02A50/358 Y02A50/473 A01N59/00 C01B7/096 C01B7/24 C02F1/50 C02F1/766 C02F2209/06 C02F2303/04

European: A01N59/00 C01B7/09D C01B7/24 C02F1/50 C02F1/76G G09F3/10 M02F1/50 M02F103/02B M02F209/06 M02F303/04

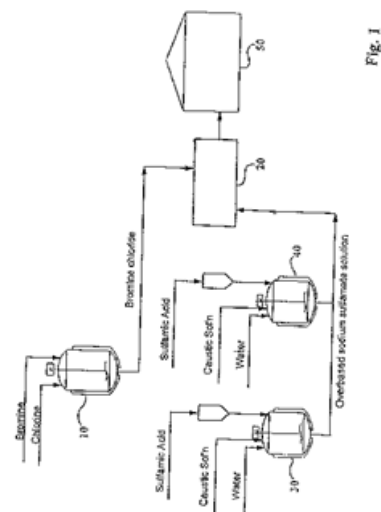
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JP F-Term: 4D049 4D050 4D050/AA08 4D050/AB06 4D050/BB04 4D050/BB20 4D050/CA13 4H011 4H011/AA02 4H011/BA01 4H011/BB18 4H011/BC18 4H011/DA13 4D050/BB03 4H011/BA06 4H011/BB07 4H011/DD01 4H011/DE14 4H011/DF04 4H011/DG16 4H011/DF06 4H011/AC01 4H011/BC01 4H011/DA01 4H011/DA02 4H011/DA03 4H011/BA04 4H011/BC07 4H011/DF03

JP F-Index: A01N25/22 A01N33/08 A01N59/00/Z A01N59/02 A01P3/00 C02F1/50/531/K C02F1/50/531/L C02F1/50/531/M C02F1/76/A A01N25/02 A01N41/08 A01N59/02/Z A01N59/08/A C02F1/50/510/A C02F1/50/520/J C02F1/50/540/B A01N59/00/D A01N25/08 A01N25/14 C02F1/50/520/F C02F1/50/520/K C02F1/50/520/L C02F1/50/520/Q C02F1/50/532/E C02F1/50/532/J C02F1/50/540/D C02F1/50/540/E C02F1/50/520/P C02F1/50/532/H

PatBase - US2001004461_AA

Patent Application Publication Jun. 21, 2001 Sheet 1 of 3 US 2001/004461 A1



Family:

Publication number	Publication date	Application number	Application date
AR041853 AA	20050601	AR2003P103944	20031029
AT259149 E	20040215	AT20000977011T	20001106
AT320187 E	20060415	AT20000963743T	20000921
AT336171 E	20060915	AT20010989936T	20011108
AU199938820 A1	19991220	AU19990038820	19990503
AU2000259288 AA	20010827	AU20000259288	20000711
AU200114705 A1	20010530	AU20010014705	20001106
AU200114705 A5	20010530	AU20010014705D	20001106
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Priority:

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AU20100200387	20100203	JP20010524436	20130215	JP20010524436T	20130215
US20130793386	20130311				

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Inventor(s): HARKINS ALVIN E ; CHRISTOPHER J NALEPA ; O FOGHLUDHA FEARGHUS ; MOORE ROBERT MJR ; ROBERT M ; ROBERT M JR MOORE ; ALVIN E HARKINS JR ; BONNIE G MCKINNIE ; WILSON R ; GARY D FOCHT ; R WOODROW WILSON JR ; JAMES E TORRES ; MOORE ROBERT ; NALEPA CHRISTOPHER ; NALEPA CHRISTOPHER J ZACHARY ; MOORE ROBERT M JR BATON ROUGE ; ROBERT M MOORE

Agent(s): DAVIES COLLISON CAVE; DAVIES COLLISON CAVE PTY LTD; MACRAE AND CO; UEXKUELL AND STOLBERG; CHINA PATENT AGENT HK LTD; EDGAR SPIELMAN ALBEMARLE CORP; ALBEMARLE CORP; E E SPIELMAN JR; EDGAR E; JEREMY J; MARCY M

Designated states: AT AU BE BG BR CA CH CN CY CZ DE DK EE ES FI FR GB GR HU ID IE IT JP KR LI LU MC MX NL PT RO RU SE SG SI SK TR UA ZA

7) Family number: 30111215 (US2001040122A)

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Title: ASSEMBLY FOR PURIFYING WATER

Abstract: An assembly for purifying water, the assembly consisting of a tube for carrying the water, the tube for carrying water having an upstream and a downstream end; a high intensity ultra-violet light or corona discharge ozone generator for introducing ozone into said tube for carrying water at an ozone introduction point within said tube; an ozone contact time tube segment situated between the ozone introduction point and the downstream end of the tube for carrying water; a bubble separator column having a water input port and a water output port, the downstream end of the tube for carrying water being positioned so that water emitting therefrom may pass through the water input port; and a water level sensitive electrically actuated valve for alternating collection of water within and discharging water from the bubble separator column.

Classifications:

International (IPC 8-9): A01M29/12 A61H33/00 A61H33/14 A61L2/10 A61L2/20 A61L9/00 A61L9/015 A61L9/12 A61L9/20 A62B25/00 A62B7/08 B01F5/00 B01F5/04 B01J19/08 C01B13/10 C01B13/11 C02F1/32 C02F1/46 C02F1/461 C02F1/76 C02F1/78 C02F9/04 C02F9/06 C02F9/12 E04H4/12 E04H4/16 G01N33/00 (Advanced/Invention); B01F3/04 (Advanced/Non-invention); A61H33/00 A61L2/10 A61L2/20 A61L9/015 A61L9/18 A62B25/00 B01F5/04 B01J19/08 C01B13/10 C01B13/11 C02F1/32 C02F1/46 C02F1/461 C02F1/78 C02F9/00 C02F9/06 E04H4/00 (Core/Invention); B01F3/04 (Core/Non-invention)

International (IPC 1-7): A61H33/02 A61H33/14 A61L9/20 B01D1/00 B01J19/08 C02F1/30 C02F1/32 C02F1/78 F17D1/00

IPC: A01M29/12 A61L9/122 F25C2400/10 F25D17/042 F25D27/00 F25D2317/0416 F25D2317/061 F25D2323/121 F25D2323/122 A61L2/10 A61L2/202 A61H33/14 A61H2033/141 C02F1/008 A61H2033/0037 A61H2033/143 A61H2201/5058 A61H2201/5082 C02F2209/005 Y10S261/42 B01F3/04503 B01F5/0476 B01F5/0485 B01F5/106 C02F2201/004 C02F1/006 C02F1/20 C02F1/32 C02F2301/024 C02F2303/18 C02F9/00 A61H33/02 A61H33/601 A61H33/606 E04H4/1209 C02F1/4674 C02F2301/046 E04H4/1281 A61H33/0087 A61H33/005 A61H2033/002 A61H2201/102 C01B2201/22 C02F1/325 C02F2103/42 C02F2201/3223 C02F2201/328 C02F2201/782 C02F2303/04 A61L2209/111 A61L2209/14 Y10T436/206664 B01F3/04099 B01F2003/04886 Y10T137/0379 Y10T137/2202 Y10T137/87587 Y10T137/87611 B01F1/0033 B01F3/0865 B01F5/0428 B01F5/0606 B01F5/0608 Y10T137/87595 C02F2301/026 C02F2301/043 C02F1/78 A62B23/00 A61L9/015 A61L9/20 A62B17/006 A62B17/04 B01D53/38 B01D53/86 B01D2251/104 B01D2253/102 B01D2257/504 B01D2257/91 B01D2259/4541 B01D2259/4558 B01D2259/4566 B01D2259/4583 B01D2259/804 C01B13/10 C01B13/11 C01B2201/82 Y02P20/152 B01F2005/044 C02F1/001 C02F1/461 **European:** A01M29/12 A61H33/00N A61H33/14 A61L2/10 A61L2/20C A61L9/015 A61L9/12F A61L9/20 A62B23/00 B01D53/38 B01F1/00F2B B01F3/08F1 B01F5/04C12 B01F5/04C12S4 B01F5/06B2D2 B01F5/06B2D6 C01B13/10 C01B13/11 C02F1/00R C02F1/32D C02F1/467B2 C02F1/78 E04H4/12A E04H4/12B F25D17/04A F25D27/00 H05B3/00L K61H201/10A K61H201/50S K61H201/50S14 K61H33/00A4D K61H33/00A5 K61H33/00E K61H33/14A1 K61H33/14A2 K61L209/111 K61L209/140 K62B17/00H K62B17/04 L01D251/104 L01D253/102 L01D257/504 L01D257/91 L01D259/45P L01D259/45T2 L01D259/45V L01D259/45W L01D259/804 L01D53/86 L01F3/04C L01F3/04C20B4E M01B201/22 M01B201/82 M02F1/00T M02F1/20 M02F1/32 M02F1/467B2 M02F103/42 M02F201/322E M02F201/328 M02F201/782 M02F209/00T M02F301/02D M02F301/04D M02F303/04 M02F303/18 M02F9/00 R25C400/10 R25D317/0416 R25D317/061 R25D323/121 R25D323/122

US: 128/205.28 137/12 137/829 137/888 137/889 137/891 204/660 205/701 205/742 205/756 210/120 210/123 210/143 210/167 210/167.1 210/167.11 210/167.12 210/169 210/188 210/192 210/198.1 210/202 210/205 210/206 210/218 210/232 210/242.1 210/259 210/260 210/416.1 210/416.2 210/739 210/748.2 210/749 210/754 210/760 210/97 250/436 250/437 250/438 261/108 261/121.1 261/79.2 261/792 261/DIG.42 4/507 4/541.1 4/541.2 422/120 422/121 422/186.03 422/186.07 422/186.070S 422/186.12 422/186.15 422/186.3 422/186.300S 422/24 422/4 436/135 96/168 96/224 96/250 D23/208

Family:

Publication number	Publication date	Application number	Application date
US2001040122 AA	20011115	US19990418915	19991015
US2001042708 AA	20011122	US20000752982	20001231
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Priority:

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US20110324958	20111213				

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Assignee(s): MINTEQ UK LTD ; SAPPI NETHERLANDS SERVICES BV

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Inventor(s): RONALD L BARNES ; RONALD BARNES

Agent(s): MARK CLODFELTER; KENNETH H JACK; DAVIS AND JACK LLC; CLODFELTER MARK; MARK; KENYON AND KENYON; STEVEN M

8) Family number: 31727286 (US2006144800A)

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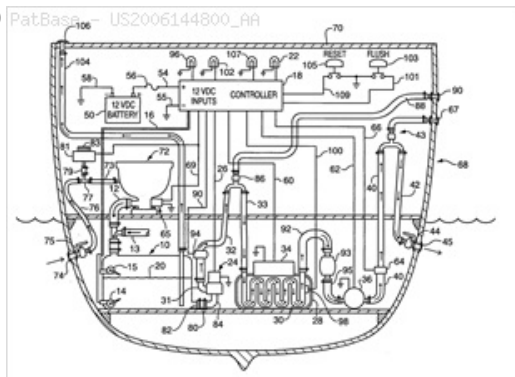
Title: SEWAGE TREATMENT SYSTEM FOR USE IN MARINE TOILET AND OTHER REMOTE TOILETS

Abstract: The method for marine sewage treatment comprises the steps of (a) dispensing with each toilet flush a controlled amount of heterotrophic bacteria culture into the boat's holding tank in order to substantially denitrify the sewage and liquefy the solids, (b) pumping raw sewage from said holding tank to fill a radiation loop, (c) applying microwave energy for a predetermined duration to the raw sewage contained within said radiation loop in order to disinfect said sewage, and (d) passing the disinfected hot sewage through a phosphate filter to substantially reduce the phosphate level. The marine sewage treatment system comprises: a toilet, a connection from a water source to said toilet, a connection from a dispenser of heterotrophic bacteria culture to said toilet, a holding tank for toilet sewage having an inlet coupled to said toilet, a macerator pump having an inlet coupled to the outlet of said holding tank and an outlet coupled to the inlet of a radiation loop, a phosphate filter having an inlet connected to the outlet of said radiation loop, an effluent discharge pump having an inlet coupled to the outlet of the phosphate filter and an outlet coupled to an effluent discharge opening to the sea and structure for applying microwave energy to said radiation loop to substantially disinfect and heat the waste water effluent in said radiation loop before filtering out the phosphates and discharging the treated effluent into the sea.

Classifications:

International (IPC 8-9): B01D21/00 B01D21/30 C02F1/00 C02F1/02 C02F1/30 C02F3/30 C02F9/04 C02F9/12 C02F9/14 E03F11/00 (Advanced/Invention); C02F1/00 C02F1/30 C02F1/52 C02F3/28 C02F3/30 (Advanced/Non-invention); B01D21/00 B01D21/30 C02F1/00 C02F1/02 C02F1/30 C02F3/30 C02F9/00 C02F9/08 C02F9/14 E03F11/00 (Core/Invention); C02F1/00 C02F1/30 C02F1/52 C02F3/28 C02F3/30 (Core/Non-invention)
International (IPC 1-7): B01D21/02 B01D21/30
CPC: Y02W10/37 C02F3/30 B01D21/0006 B01D21/003 B01D21/02 B01D21/10 B01D21/2416 B01D21/2444 B01D21/34 B01D2221/02 C02F2201/009 C02F2209/006 C02F2209/42 B01D21/302 Y02A20/216 Y02A20/212 C02F1/5236 C02F1/008 B63B29/16 B63J4/004 C02F1/302 C02F1/705 C02F3/302 C02F9/00 C02F2103/005 C02F2103/008 C02F2209/008 C02F2303/04 B01D21/00 B01D21/0039 B01D21/2405

European: B01D21/00 B01D21/00C B01D21/00M B01D21/02 B01D21/10 B01D21/24A4 B01D21/24G B01D21/30 B01D21/34 C02F1/00T C02F1/30B C02F1/52F2 C02F1/70C C02F3/30 C02F3/30D C02F9/00 C02F9/00Z L01D221/02 M02F1/30B M02F201/00I M02F201/00P M02F209/00T2 M02F209/00T4 M02F209/42
US: 210/121 210/121S 210/143 210/187 210/532.2 210/744 210/748 210/748.07 210/748.0705



Family:

Publication number	Publication date	Application number	Application date
CA2538635 AA	20060903	CA20062538635	20060302
EP1698593 A2	20060906	EP20060004166	20060302
EP1698593 A3	20061025	EP20060004166	20060302
US2006144800 AA	20060706	US20060363028	20060227
US6863805 BA	20050308	US20020306325	20021127

Priority:

US20020306325 20021127 US20050072946 20050303 US20060363028 20060227
CA20062538635 20060302

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Inventor(s): (std): BARRERAS SR FRANCISCO J ; BARRERAS DANIEL E ; BARRERAS FRANCISCO J ; BARRERAS FRANCISCO J SR

Inventor(s): BARRERAS FRANCISCO JSR ; BARRERAS DANIEL ; BARRERAS FRANCISCO

Agent(s): SADIK AHMED N; WELSH AND KATZ LTD; THOMAS R

Designated states: AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK NL PL PT RO SE SI SK TR YU

9) Family number: 56967286 (US2014202565A)

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Title: MODULAR COMMUNITY WATER STATION

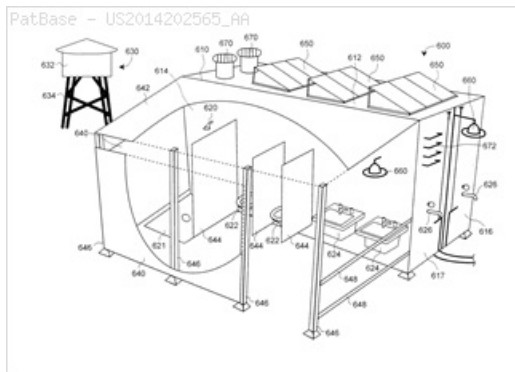
Abstract: A deployable water management unit is disclosed that includes a fixture configured to be secured along an outer surface of a container in fluid communication with a water outlet port. In some embodiments, a water purifier may be positioned within an inner volume of a container and disposed along a water flow path between a water inlet port and a water outlet port. The water purifier may be configured to increase the temperature of inlet water to a preferred temperature. In still other embodiments, a plurality of interfaces may be configured to couple a panel to an outer surface of a container. The systems of the present disclosure may reduce the prevalence of disease associated with sanitation in various communities around the world. Further, the systems may heat water to provide a more enjoyable washing experience thereby encouraging a local community to engage in regular personal hygiene.

Classifications:

International (IPC 8-9): C02F1/00 F17D1/00 (Advanced/Invention)

CPC: C02F1/006 F17D1/00 Y10T137/8593 Y02W10/37 C02F1/001 C02F1/02 C02F2103/007 C02F2103/06 C02F2303/04 E03B3/06 E03C1/044

US: 137/561R 210/153 210/175



Family:

Publication number	Publication date	Application number	Application date
US2014202565 AA	20140724	US20130746832	20130122

Priority:

US20130746832 20130122

Probable Assignee: WARM SPRING FOUNDATION

Assignee(s): (std): WARM SPRING FOUNDATION

Inventor(s): (std): BITTNER ERIN J

Title: ELECTRODEIONIZATION DEVICE AND METHODS OF USE

Abstract: The purification system includes an electrodeionization device which can comprise one or a plurality of stages. The electrodeionization device can be constructed with a resilient sealing member forming a water-tight seal between rigid thermally and dimensionally stable compartment spacers. The construction of the electrodeionization device allows hot water cycling, which, in some cases, improves its efficiency and performance. Moreover, the hot water cycling may be used to sanitize the device to a pharmaceutically acceptable condition and, preferably, to meet at least minimum requirements according to U.S. Pharmacopoeia guidelines by inactivating any microorganisms.

Classifications:

International (IPC 8-9): A61L2/03 A61L2/04 A61L2/18 A61L2/24 B01D61/42 B01D61/48 B01D61/50 B01D61/52 B01D61/54 B01D63/08 B01D65/02 B01J47/08 C02F1/02 C02F1/469 (Advanced/Invention); C02F1/02 C02F1/42 C02F1/467 C02F1/469 C02F1/50 (Advanced/Non-invention);

A61L2/02 A61L2/04 B01D61/42 B01D63/08 B01D65/00 B01J47/00 C02F1/469 (Core/Invention); C02F1/02 C02F1/42 C02F1/469 C02F1/50 (Core/Non-invention)

International (IPC 1-7): B01D61/42 B01D61/48 B01D61/50 B01D61/52 B01D61/54 C02F1/46 C02F1/469 C02F1/48

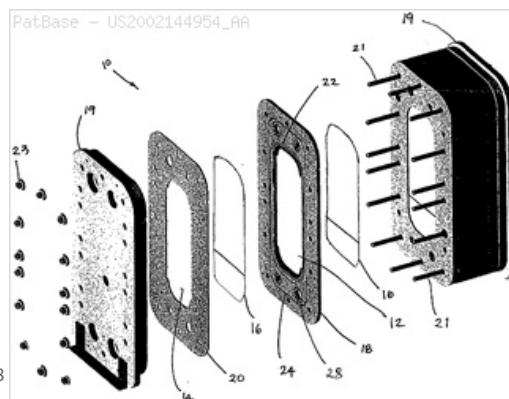
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European: A61L2/03 A61L2/04 A61L2/18 A61L2/24 B01D61/48 B01D61/50 B01D61/52 B01D63/08 B01D65/02 B01J47/08 C02F1/02 C02F1/469 D2 M02F1/02 M02F1/42 M02F1/467 B M02F1/50 M02F201/461 B8 M02F209/02 M02F209/40 M02F303/04 M02F303/16

US: 204/520 210/175 210/175S 210/243 210/243S 210/742 210/748 210/748.01 210/748.010P 210/748.010S 210/764 210/774 210/774S 422/28 422/38

JP F-Term: 4D006 4D006/GA17 4D006/KC21 4D006/KD06 4D006/MA03 4D006/MB07 4D006/MB15 4D006/PB02 4D006/PC51 4D061 4D061/DA01 4D061/EA09 4D061/EB01 4D061/EB13

JP F-Index: B01D61/42 C02F1/46/103 C02F1/469



Family:

Publication number	Publication date	Application number	Application date
AU2001294726 AA	20020408	AU20010294726	20010926
BRPI0510999 A	20071226	BR2005PI10999	20050513
CA2423486 AA	20030324	CA20012423486	20010926
CA2566752 AA	20061110	CA20052566752	20050513
CA2566752 C	20120626	CA20052566752	20050513
CN101001814 A	20070718	CN200580023752	20050513
CN102583663 A	20120718	CN201210029282	20050513
CN1468139 A	20040114	CN20018016504	20010926
DE602005045081 D1	20141211	DE200560045081T	20050513
EP1322406 A2	20030702	EP20010975393	20010926
EP1763490 A1	20070321	EP20050749295	20050513
EP1763490 A4	20100616	EP20050749295	20050513
EP1763490 B1	20141105	EP20050749295	20050513
IN06733DN2006 A	20070831	IN2006DN06733	20061113
IN256435 B	20130621	IN2006DN06733	20061113
JP2004509749 T2	20040402	JP20020530419T	20010926
US2002144954 AA	20021010	US20010954986	20010918
US2005016932 AA	20050127	US20040845782	20040513
US7147785 BB	20061212	US20040845782	20040513
WO0226629 A2	20020404	WO2001US30053	20010926
WO0226629 A3	20021219	WO2001US30053	20010926
WO05113450 A1	20051201	WO2005US16751	20050513

Priority:

US20000236276P 20000928 US20010954986 20010918 WO2001US30053 20010926
US20040845782 20040513 EP20050749295 20050513 WO2005US16751 20050513

Probable Assignee: EVOQUA WATER TECHNOLOGIES LLC

Assignee(s): (std): ARBA JOHN W ; ATNOOR DEVENDRA ; EVOQUA WATER TECHNOLOGIES LLC ; LIANG LI SHIANG ; GIFFORD JOSEPH D ; SIEMENS WATER TECHNOLOGIES HOL ; SIEMENS WATER TECH CORP ; SIEMENS WATER TECH HOLDG CORP ; UNITED STATES FILTER CORP ; SPRINGTHORPE PAUL ; WOOD JONATHAN H ; SIEMENS WATER TECHNOLOGIES HOLDING CORP

Assignee(s): SIEMENS WATER TECHNOLOGIES LLC ; USFILTER CORP ; MDM GROUP ; SIEMENS IND INC ; SIEMENS WATER TECHNOLOGIES CORP ; SEIMENS WATER TECHNOLOGIES HOLDING CORP ; EVOQUA WATER TECHNOLOGIES LLC ALPHARETTA ; CREDIT SUISSE CAYMAN ISLANDS BRANCH COLLATERAL AGENT AG AS

Inventor(s): (std): PAUL SPRINGTHORPE ; LI SHIANG LIANG ; DEVENDRA ATNOOR ; WOOD JONATHAN H ; ATNOOR DEVENDRA ; GIFFORD JOSEPH D ; LIANG LI SHIANG ; SPRINGTHORPE PAUL ; ARBA JOHN W ; ARBA JOHN W LIANG LI SHIANG GI

Inventor(s): JOHN W ARBA ; GIFFORD JOSEPH ; WOOD JONATHAN ; ARBA JOHN ; ARBA JOHN W BRADFORD ; LIANG LI SHIANG HARVARD ; GIFFORD JOSEPH D MARLBOROUGH ; WOOD JONATHAN H NEEDHAM ; ATNOOR DEVENDRA WOBURN ; JOSEPH D GIFFORD ; JONATHAN H WOOD

Agent(s): SMART AND BIGGAR; BORDEN LADNER GERVAIS LLP; MURGITROYD AND CO; MURGITROYD GEORGE EDWARD; MASUI CHUJI; SHAMOTO ICHIO; KOBAYASHI YASUSHI; TOMITA HIROYUKI; CHIBA AKIO; TIMOTHY J OYER PHD WOLF GREENFIELD AND SACKS PC

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KM KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SM SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

11) Family number: 30130326 (US2003094422A)

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Title: POULTRY PROCESSING WATER RECOVERY AND RE-USE PROCESS

Abstract: The inventions of the present disclosure are directed to processes designed to recover water used in certain aspects of the processing of poultry, treat the recovered water to remove solids, fats, oils and greases, animal proteins and pathogenic organisms and to reuse the treated water for poultry processing operations. The processes described herein reduce bacteria and microorganisms associated with the poultry and reuse water. The present disclosure can be employed with an approach that includes unexpected positive results of reacting ozone and chlorine with water being treated for reuse to generate hypochlorous acid and/or other effective biocides. Ozone reacts with fats, oils, and greases, dissolved in the reuse water, to produce specific surface-active agents and surfactants which reduce the surface tension of the water which it is dissolved. The combination of these surface-active agents and surfactants and the biocides cause an extraordinary release and destruction of bacteria from the poultry carcass as well as the reuse water.

Classifications:

International (IPC 8-9): A23B4/24 A23B4/30 A61L2/00 A61L2/18 B01D17/00 B01D21/00 C02F1/00 C02F1/32 C02F1/66 C02F1/76 C02F1/78 C02F9/00 C02F9/02 C02F9/04 G01N33/02 (Advanced/Invention); C02F1/00 C02F1/32 C02F1/40 C02F1/78 C02F9/02 (Advanced/Non-invention); A23B4/14 A23B4/26 A61L2/18 B01D17/00 B01D21/00 C02F1/00 C02F1/66 C02F1/76 C02F1/78 C02F9/00 C02F9/02 (Core/Invention); C02F1/00 C02F1/32 C02F1/40 C02F1/78 (Core/Non-invention)

International (IPC 1-7): A01N1/00 A21D4/00 A22C21/00 A61L2/00 A61L9/00 B01D1/00 B01D17/025 B01D17/12 B01D21/24 B01D21/08 C02F1/40 C02F1/68 C02F1/76 C02F1/78 C02F103/22 C02F9/02 C02F9/04

CPC: Y10S210/905 Y10S210/908 B01D21/0042 B03D1/028 C02F9/00 A23B4/24 A23B4/30 A61L2/183 B01D21/2488 B01D21/305 B01D21/32 B03D1/1431 C02F1/001 C02F1/008 C02F1/24 C02F1/40 C02F1/66 C02F2209/005 C02F2209/02 C02F2209/04 C02F2209/06 C02F2209/23 C02F2209/42 C02F2303/04 B01D21/0084 B01D21/302 A22C21/0061 B01D21/0012 B01D21/003 B01D21/2405 B01D21/2433 B01D21/2444 B01D21/245 B01D21/34 B01D221/06 C02F1/32 C02F1/76 C02F1/78 C02F2101/32 C02F2101/325 C02F2101/38 C02F2103/22 B01D17/12 Y02A40/922 B01D17/00 B01D17/0208 B01D17/0211 B01D17/0214

European: A22C21/00H A23B4/24 A23B4/30 A61L2/18L B01D17/00 B01D21/00F B01D21/00M B01D21/00N B01D21/00N2 B01D21/00T B01D21/24A B01D21/24D B01D21/24G B01D21/24N B01D21/24R B01D21/30C B01D21/32 B01D21/34 B03D1/14D C02F1/00T C02F1/66 C02F1/76 C02F1/78 C02F9/00 L01D21/00F L01D21/06 M02F1/00D M02F1/00T M02F1/24 M02F1/32 M02F1/40 M02F1/66 M02F1/76 M02F1/78 M02F101/32 M02F101/32E M02F101/38 M02F103/22 M02F209/00T M02F209/02 M02F209/04 M02F209/06 M02F209/23 M02F209/42 M02F303/04

US: 134/10 210/195.1 210/259 210/532.1 210/704 210/708 210/724 210/745 210/752 210/754 210/756 210/76 210/760 210/764 210/776 210/800 210/805 210/806 210/905 210/908 422/186.07 422/28 422/28P 422/28S 422/31 422/32 422/34 422/37 422/79 426/231 426/231P 426/320 426/321 426/326 426/332 426/335 452/173

Family:

Publication number	Publication date	Application number	Application date
AU200037017 A1	20000904	AU20000037017	20000218
AU200037017 A5	20000904	AU20000037017	20000218
US2003094422 AA	20030522	US20020045778	20020111
US2004067160 AA	20040408	US20030613475	20030702
US2005016934 AA	20050127	US20040927379	20040826
US2006070959 AA	20060406	US20050245257	20051006
US2009208616 AA	20090820	US20090388208	20090218
US6605253 BA	20030812	US20000591513	20000609
US6802984 BA	20041012	US20000507163	20000218
US6946080 BB	20050920	US20040927379	20040826
US7077967 BB	20060718	US20020045778	20020111
WO0048951 A1	20000824	WO2000US04272	20000218
WO0048951 C2	20020502	WO2000US04272	20000218

Priority:

US19990120953P 19990219	US19990138368P 19990610	US20000507163 20000218
WO2000US04272 20000218	US20000591513 20000609	US20010261012P 20010111
US20020045778 20020111	US20030613475 20030702	US20040927379 20040826
US20050245257 20051006	US20090388208 20090218	

Probable Assignee: ZENTOX CORP

Assignee(s): (std): GANN DALE ; MCGRANE WILLIAM ; MILLER RICHARD ; PERKINS MICHAEL ; PHILLIPS JOE ; ZENTOX CORP

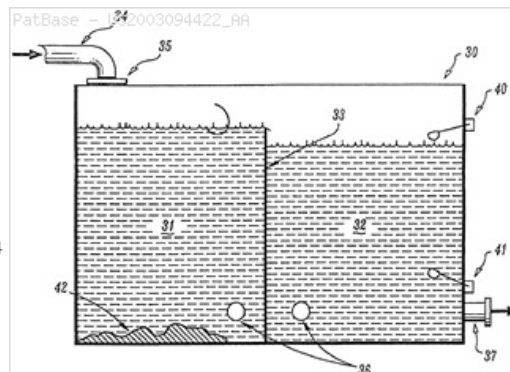
Assignee(s): SVRLUGA RICHARD C

Inventor(s): (std): PERKINS MICHAEL ; PHILLIPS JOE ; GANN DALE ; MILLER RICHARD ; MCGRANE WILLIAM ; MILLER RICHARD DEAN

Inventor(s): RICHARD DEAN MILLER ; DALE GANN ; JOE PHILLIPS ; MICHAEL PERKINS

Agent(s): BROWN RUDNICK BERLACK AND ISRAELS LLP; MARK S LEONARDO ESQ BROWN RUDNICK BERLACK ISRAELS LLP; SEYFARTH SHAW LLP; BROWN RUDNICK BERLACK ISRAELS LLP; LEONARDO MARK S; SERIO JOHN C; JOHN C; MARK S

Designated states: AE AL AM AT AU AZ BA BB BE BF BG BJ BR BY CA CF CG CH CI CM CN CR CU CY CZ DE DK DM EE ES FI FR GA GB GD GE GH GM GN GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX NE NL NO NZ PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TR TT TZ UA UG UZ VN YU ZA ZW



Publication number	Publication date	Application number	Application date
US2005029174 AA	20050210	US20030636532	20030808

Priority:

US20030636532 20030808

Probable Assignee: SPIRALCAT OF MARYLAND

Assignee(s): COLLINS CAROL ANN ; SPIRALCAT OF MARYLAND

Inventor(s): (std): COLLINS CAROL ANN

Inventor(s): COLLINS CAROL

Agent(s): CAROL COLLINS

14) Family number: 70426417 (US2019309248A)

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Title: NOVEL FERMENTATION SYSTEMS AND METHODS

Abstract: The subject invention provides systems and apparatuses for producing microbe-based compositions that can be used in the oil and gas industry, environmental cleanup, as well as for other applications. More specifically, the present invention includes biological reactors, equipment, and materials for fermenting microbe-based compositions.

Classifications:

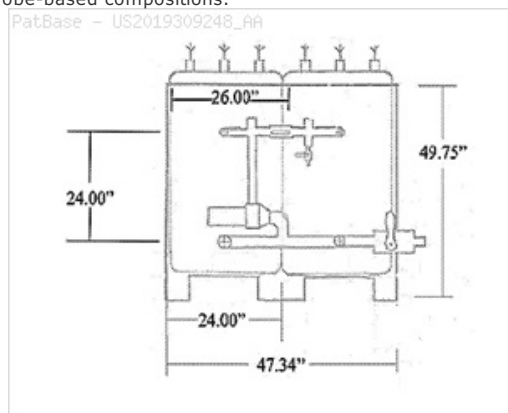
International (IPC 8-9): A01C21/00 A01N63/02 A01N63/04 A23K10/12 A23K10/18 A61L2/07 A61L2/10 A61L2/22 B08B9/027 C02F1/00 C02F1/32 C05F11/08 C09K8/52 C09K8/584 C11D1/66 C11D3/38 C11D7/40 C12M C12M1/00 C12M1/12 C12N1/16 C12P19/44

E21B43/16 (Advanced/Invention);

C12M (Subclass/Invention)

International (IPC 1-7): A01N63/02

CPC: C11D7/40 C02F2303/04 C12M29/14 C12P19/44 C09K8/584 C09K8/52 C11D1/662 C11D3/381 C05F11/08 A61L2/22 A61L2/07 A61L2/10 B08B9/027 C02F1/001 C02F1/32 A23K10/18 A01C21/00 E21B43/16 A61L2202/17 B08B2209/027 A23K10/12 C11D3/38 C11D11/0041 C12M23/52 C12M23/58 C12M29/00 C12M37/00 C12N1/16 Y02A40/19 A01N63/10 A01N63/30



Family:

Publication number	Publication date	Application number	Application date
AU2018205524 AA	20190711	AU20180205524	20180105
BR112019013777 A2	20200121	BR20191113777	20180105
CA3048640 AA	20190626	CA20183048640	20180105
CL2019001873 A1	20190923	CL20190001873	20190705
CN110168072 A	20190823	CN201880006071	20180105
CO20190006397 A2	20190628	CO20190006397	20190618
CR20190357 A	20191112	CR20190000357	20180105
EA201991662 A1	20191230	EA20190091662	20180105
EP3565885 A1	20191113	EP20180736209	20180105
ID201906055 A	20190816	ID2019PID06656	20180105
IL267541 A0	20190829	IL20180267541	20180105
KR20190095958 A	20190816	KR20197022626	20180105
MX2019008057 A1	20190910	MX20190008057	20180105
PE20191798 A1	20191226	PE20190001338	20180105
US2019309248 AA	20191010	US20180470224	20180105
WO18129299 A1	20180712	WO2018US12561	20180105

Priority:

US20170443356P 20170106

US20180470224 20180105

WO2018US12561 20180105

Probable Assignee: LOCUS SOLUTIONS LLC

Assignee(s): (std): ADAMS KENT ; ALIBEK KEN ; FARMER SEAN ; LOCUS IP CO LLC ; LOCUS SOLUTIONS LLC

Inventor(s): (std): KENT ADAMS ; KEN ALIBEK ; SEAN FARMER ; ADAMS KENT ; FARMER SEAN ; ALIBEK KEN

Agent(s): IP GATEWAY PATENT AND TRADE MARK ATTORNEYS PTY LTD; MBM INTELLECTUAL PROPERTY LAW LLP; ESTUDIO CLARKE MODET AND CO CHILE SPA; KRAUSS JAN; RISTI WULANSARI SH; SALIWANCHIK DAVID R ET AL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JO JP KE KG KH KM KN KP KR KW KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

15) Family number: 28540445 (US2003094406A)

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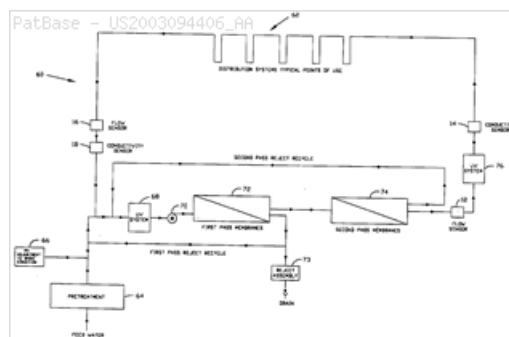
Abstract: A process is provided to produce water that will meet the specifications of the United States Pharmacopeia Inc. for Purified Water and Water for Injection, and water for dialysis as circumscribed by the American Association for Advancement of Medical Instrumentation (AAMI). The system has no storage tanks where stagnant water will be fouled by biofilm colonizing the tank surface. Water is circulated throughout the purification system and drawn as required, on demand. The water is purified and used immediately or recycled and repurified to ensure quality. Sanitation of the purification system, maintaining microbiological purity and cleaning is done by controlling the pH so that it is normally acidic by maintaining a high carbon dioxide concentration in solution, the carbon dioxide being allowed to pass into the permeate from a reverse osmosis membrane assembly used to purify the water.

International (IPC 8-9): B01D61/02 B01D61/04 B01D61/08 B01D61/12
B01D65/02 C02F1/44 (Advanced/Invention);
A61M1/16 (Advanced/Non-invention)

CPC: B01D65/02 B01D2321/162 B01D2321/205 B01D2321/40
B01D61/027 A61M1/1656 B01D61/022 B01D61/025 B01D61/04
B01D61/08 B01D61/12 B01D65/022 B01D2311/04 B01D2311/06
C02F1/441 A61M1/1662 A61M1/1674

European: B01D61/02B B01D61/02D B01D61/02F B01D61/04
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L01D311/04 L01D311/06

US: 210/137 210/149 210/184 210/192 210/195.2 210/195.200S 210/201 210/202 210/202S 210/258 210/321.65 210/321.650S 210/87 210/96.2 210/96.200P



Publication number	Publication date	Application number	Application date
AT445576 E	20091015	AT20020771946T	20021031
CA2464416 AA	20040421	CA20022464416	20021031
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DE60234043 D1	20091126	DE20026034043	20021031
EP1440041 A1	20040728	EP20020771946	20021031
EP1440041 B1	20091014	EP20020771946	20021031
ES2336659 T3	20100415	ES20020771946T	20021031
US2003094406 AA	20030522	US20020285621	20021101
US6908546 BB	20050621	US20020285621	20021101
WO03040042 A1	20030515	WO2002CA01674	20021031

US20010330966P 20011105 WO2002CA01674 20021031 US20020285621 20021101

Assignee(s): (std): BIONOMICS LTD

Assignee(s): SMITH STEVEN D

Inventor(s): (std): SMITH STEVEN D ; SMITH STEVEN

Agent(s): GOWLING LAFLEUR HENDERSON LLP; VAN MALDEREN JOELLE; SCHMIDT INGRID E; INGRID E

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM
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SK SL SN SZ TD TG TJ TM TN TR TT TZ UA UG UZ VN YU ZA ZM ZW