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[EPODOC: SS 46] antimicrobial and recycle and filter

Results in EPODOC 16

[SS 47] ..li



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PN - [US2020245651](#) A1 20200806

PR - US202016854553
20200421; US201816128724
20180912; US201615069255
20160314; US201414510385
20141009; US20030535030
20031112; WO2003US35933
20031112; US20020425679P
20021112

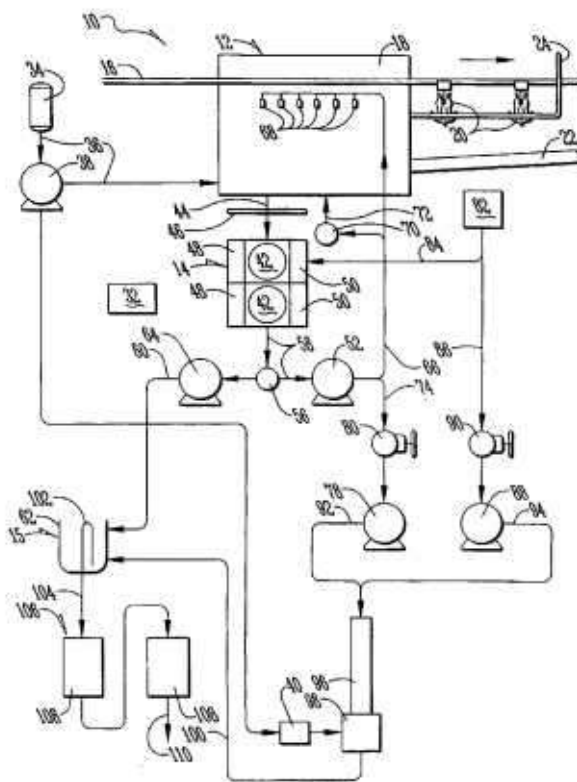
AP - [US202016854553](#) 20200421

DT - **

CCI - [A23B4/20](#) ; [A23B4/26](#) ; [A23L3/3463](#) ;
[A23L3/3526](#) ; [A61L2/18](#) ;
[B01D33/11](#) ; [B01D33/50](#) ;
[C02F1/283](#) ; [C02F1/50](#)

CCA - [C02F2103/32](#) ; [C02F2209/005](#) ;
[C02F2303/18](#) ; [C02F2303/185](#) ;
[C02F2303/24](#)

CI - A23B4/20 (EP, US)
- A23B4/24 (US)
- A23B4/26 (EP, US)
- A23L3/3454 (EP, US)
- A23L3/3463 (EP, US)
- A23L3/3526 (EP, US)
- A23L3/3589 (US)
- A61L2/18 (EP, US)
- A61L2/24 (US)
- B01D24/007 (US)



- B01D24/24 (US)
- B01D24/40 (US)
- B01D33/11 (EP, US)
- B01D33/50 (EP, US)
- C02F1/283 (EP, US)
- C02F1/50 (EP, US)
- CA
 - B01D33/41 (US)
 - B01D2201/084 (US)
 - C02F2103/32 (EP, US)
 - C02F2209/005 (EP, US)
 - C02F2303/18 (EP, US)
 - C02F2303/185 (EP, US)
 - C02F2303/24 (EP, US)
- PA
 - SAFE FOODS CORP [US]
- TI
 - **ANTIMICROBIAL** APPLICATION SYSTEM WITH **RECYCLE** AND CAPTURE
- AB
 - A capture unit for use with an **antimicrobial** application unit may include an upstream **filter** and a downstream **filter**. The upstream **filter** may be positioned to receive effluent from the application unit and to **filter** solid components from the effluent. The resultant upstream effluent filtrate may then be passed downstream to the downstream **filter**. The downstream **filter** may be used to **filter** an **antimicrobial** component from the upstream effluent filtrate and the resultant downstream effluent filtrate may be suitable for disposal as wastewater discharge. The **antimicrobial** is preferably a quaternary ammonium compound, is more preferably an alkylpyridinium chloride, and is most preferably cetylpyridinium chloride.

PN - [AU2019268156](#) A1 20191212

PR - AU20190268156
20191121; AU20180236773
20180926; AU20150328488
20151001; US201414510385
20141009; WO2015US53398
20151001

AP - [AU20190268156](#) 20191121

DT - I

CCI - [B01D24/14](#) ; [B01D24/40](#) ;
[B01D33/11](#) ; [B01D33/50](#) ;
[B01D33/76](#) ; [C02F1/001](#) ;
[C02F1/006](#) ; [C02F1/283](#)

CCA - [C02F2103/22](#) ; [C02F2103/32](#) ;
[C02F2303/04](#)

CI - A23L3/3454 (RU)
A23L3/3463 (RU)
B01D24/14 (EP)
B01D24/40 (EP, RU)
B01D33/073 (RU)
B01D33/11 (EP)
B01D33/50 (EP)
B01D33/76 (EP)
C02F1/001 (EP)
C02F1/006 (EP)
C02F1/28 (RU)
C02F1/283 (EP)

CA - C02F2103/22 (EP)
C02F2103/32 (EP)
C02F2303/04 (EP)

PA - SAFE FOODS CORP [US]

TI - **Antimicrobial** application system
with **recycle** and capture

AB - A method for capturing
an **antimicrobial** component of
an **antimicrobial** solution is
disclosed. The method
comprises filtering a solid
component from an **antimicrobial**
solution with a first **filter** coupled
to a capture line for carrying
the **antimicrobial** solution to the
first **filter**; conveying
the **antimicrobial** solution from
the first **filter** to a second **filter**;
filtering an **antimicrobial**
component from the **antimicrobial**
solution with the second **filter**;

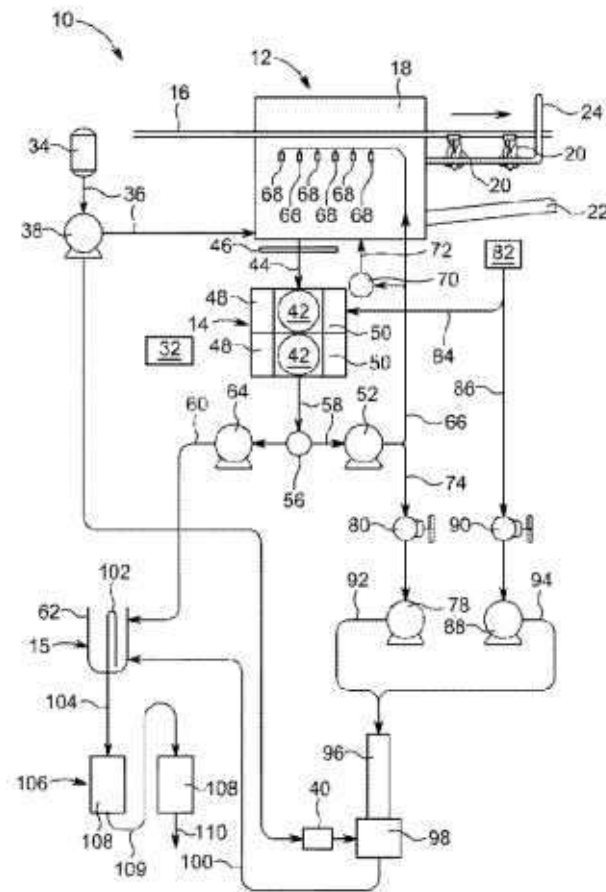


FIG. 1

wherein the first **filter** comprises a screen **filter** having a rotatable body, wherein the body comprises an annular wall having an inwardly facing surface defining a bore to receive the **antimicrobial** solution from the capture line, and wherein the annular wall comprises: a **filter** portion defining a plurality of holes along the inwardly facing surface that extend through the annular wall to **filter** the solid component of the **antimicrobial** solution when the **antimicrobial** solution is received thereon from the capture line, and a band portion having a continuous surface that extends about the bore along the inwardly facing surface to receive the **antimicrobial** solution from the capture line onto the continuous surface before the **antimicrobial** solution is received along the **filter** portion, and wherein the capture line comprises an outlet positioned to direct the **antimicrobial** solution onto the continuous surface of the band at an angle between less than parallel and perpendicular to the inwardly facing surface.

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- PN - [NZ750496](#) A 20190830
- PR - US201414510385 20141009; NZ20150740977 20151001
- AP - [NZ20150750496](#) 20151001
- DT - I
- PA - SAFE FOODS CORP
- TI - **Antimicrobial** application system with **recycle** and capture
- AB - Recycling **antimicrobial** liquids in connection with food processing and items associated with food processing presents a number of special issues and concerns, particularly adulteration, contamination and cross-contamination. The present invention provides a method for use with an **antimicrobial** application unit which allows **antimicrobial** liquids to be recycled without these concerns. The method comprises capturing an **antimicrobial** component of an **antimicrobial** solution, comprising: filtering a solid component from an **antimicrobial** solution with a first **filter** coupled to a capture line for carrying the **antimicrobial** solution to the first **filter**; conveying the **antimicrobial** solution from the

first **filter** to a second **filter**; and filtering an **antimicrobial** component from the **antimicrobial** solution with the second **filter**. The first **filter** comprises a screen **filter** having a rotatable body. The body comprises an annular wall having an inwardly facing surface defining a bore to receive the **antimicrobial** solution from the capture line. The annular wall comprises a **filter** portion defining a plurality of holes along the inwardly facing surface that extend through the annular wall to **filter** the solid component of the **antimicrobial** solution when the **antimicrobial** solution is received thereon from the capture line, and a band portion having a continuous surface that extends about the bore along the inwardly facing surface to receive the **antimicrobial** solution from the capture line onto the continuous surface before the **antimicrobial** solution is received along the **filter** portion. The capture line comprises an outlet positioned to direct the **antimicrobial** solution onto the continuous surface of the band at an angle between less than parallel and perpendicular to the inwardly facing surface.

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PN	- SG10201903398V A 20190530	
PR	- US201414510385 20141009	
AP	- SG20191003398V 20151001	
DT	- I	
CCI	- B01D24/14 ; B01D24/40 ; B01D33/11 ; B01D33/50 ; B01D33/76 ; C02F1/001 ; C02F1/006 ; C02F1/283	
CCA	- C02F2103/22 ; C02F2103/32 ; C02F2303/04	
CI	- A23L3/3454 (RU) - A23L3/3463 (RU) - B01D24/14 (EP) - B01D24/40 (EP, RU) - B01D33/073 (RU) - B01D33/11 (EP) - B01D33/50 (EP) - B01D33/76 (EP) - C02F1/001 (EP) - C02F1/006 (EP) - C02F1/28 (RU) - C02F1/283 (EP)	
CA	- C02F2103/22 (EP) - C02F2103/32 (EP) - C02F2303/04 (EP)	
PA	- SAFE FOODS CORP [US]	
TI	- ANTIMICROBIAL APPLICATION SYSTEM WITH RECYCLE AND CAPTURE	
AB	- ANTIMICROBIALAPPLICATION SYSTEM WITH RECYCLE AND CAPTURE A capture unit for use with an antimicrobial application	

unit may include an upstream **filter** and a downstream **filter**. The upstream **filter** may be positioned to receive effluent from the application unit and to **filter** solid components from the effluent. The resultant upstream effluent filtrate may then be passed downstream to the downstream **filter**. The downstream **filter** may be used to **filter** an **antimicrobial** component from the upstream effluent filtrate and the resultant downstream effluent filtrate may be suitable for disposal as wastewater discharge. The **antimicrobial** is preferably a quaternary ammonium compound, is more preferably an alkylpyridinium chloride, and is most preferably cetylpyridinium chloride. FIG. 1

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PN - [US2019030464](#) A1 20190131

PNFP - US10660352 B2 20200526

PR - US201816128724
20180912; US201615069255
20160314; US201414510385
20141009; US20030535030
20031112; WO2003US35933
20031112; US20020425679P
20021112

AP - [US201816128724](#) 20180912

DT - **

CCI - [A23B4/20](#) ; [A23B4/26](#) ; [A23L3/3463](#) ;
[A23L3/3526](#) ; [A61L2/18](#) ;
[B01D33/11](#) ; [B01D33/50](#) ;
[C02F1/283](#) ; [C02F1/50](#)

CCA - [C02F2103/32](#) ; [C02F2209/005](#) ;
[C02F2303/18](#) ; [C02F2303/185](#) ;
[C02F2303/24](#)

CI - A23B4/20 (EP, US)
- A23B4/24 (US)
- A23B4/26 (EP, US)
- A23L3/3454 (EP, US)
- A23L3/3463 (EP, US)



	- A23L3/3526 (EP, US) - A23L3/3589 (US) - A61L2/18 (EP, US) - A61L2/24 (US) - B01D24/007 (US) - B01D24/24 (US) - B01D24/40 (US) - B01D33/11 (EP, US) - B01D33/50 (EP, US) - C02F1/283 (EP, US) - C02F1/50 (EP, US)
CA	- B01D33/41 (US) - B01D2201/084 (US) - C02F2103/32 (EP, US) - C02F2209/005 (EP, US) - C02F2303/18 (EP, US) - C02F2303/185 (EP, US) - C02F2303/24 (EP, US)
PA	- (A1 B2) SAFE FOODS CORP [US]
TI	- (A1) ANTIMICROBIAL APPLICATION SYSTEM WITH RECYCLE AND CAPTURE - (B2) Antimicrobial application system with recycle and capture
AB	- (A1 B2) A capture unit for use with an antimicrobial application unit may include an upstream filter and a downstream filter. The upstream filter may be positioned to receive effluent from the application unit and to filter solid components from the effluent. The resultant upstream effluent filtrate may then be passed downstream to the downstream filter. The downstream filter may be used to filter an antimicrobial component from the upstream effluent filtrate and the resultant downstream effluent filtrate may be suitable for disposal as wastewater discharge. The antimicrobial is preferably a quaternary

ammonium compound, is more preferably an alkylpyridinium chloride, and is most preferably cetylpyridinium chloride.

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PN - [AU2018236773](#) A1 20181018

PNFP - AU2018236773B B2 20190822

PR - AU20180236773
20180926; AU20150328488
20151001; US201414510385
20141009; WO2015US53398
20151001

AP - [AU20180236773](#) 20180926

DT - I

CT - // STSE (B2)
[US5133860](#) A 19920728 [] (TAI
LIANG C [TW]);
[US2011297609](#) A1 20111208 [] (HU
JIN [US])

CCI - [B01D24/14](#) ; [B01D24/40](#) ;
[B01D33/11](#) ; [B01D33/50](#) ;
[B01D33/76](#) ; [C02F1/001](#) ;
[C02F1/006](#) ; [C02F1/283](#)

CCA - [C02F2103/22](#) ; [C02F2103/32](#) ;
[C02F2303/04](#)

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B01D24/40 (EP, RU)
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C02F1/001 (EP)
C02F1/006 (EP)
C02F1/28 (RU)
C02F1/283 (EP)

CA - C02F2103/22 (EP)
C02F2103/32 (EP)
C02F2303/04 (EP)

PA - (A1)
SAFE FOODS CORP
(B2)
SAFE FOODS CORP [US]

TI - (A1 B2)
Antimicrobial application system

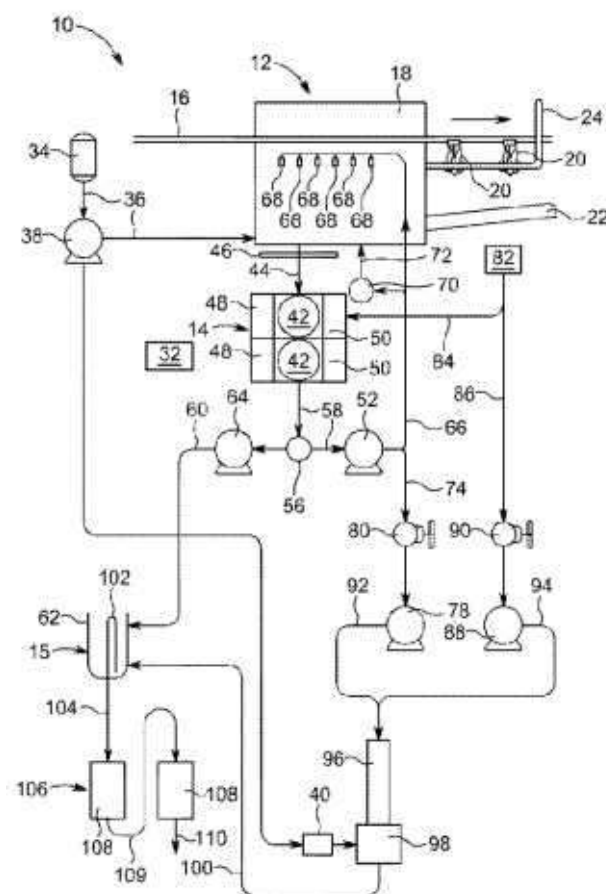


FIG. 1

with **recycle** and capture

AB

- (A1 B2)

A method for capturing an **antimicrobial** component of an **antimicrobial** solution is disclosed. The method comprises filtering a solid component from an **antimicrobial** solution with a first **filter** coupled to a capture line for carrying the **antimicrobial** solution to the first **filter**; conveying the **antimicrobial** solution from the first **filter** to a second **filter**; filtering an **antimicrobial** component from the **antimicrobial** solution with the second **filter**; wherein the first **filter** comprises a screen **filter** having a rotatable body, wherein the body comprises an annular wall having an inwardly facing surface defining a bore to receive the **antimicrobial** solution from the capture line, and wherein the annular wall comprises: a **filter** portion defining a plurality of holes along the inwardly facing surface that extend through the annular wall to **filter** the solid component of the **antimicrobial** solution when the **antimicrobial** solution is received thereon from the capture line, and a band portion having a continuous surface that extends about the bore along the inwardly facing surface to receive the **antimicrobial** solution from the capture line onto the continuous surface before the **antimicrobial** solution is received along the **filter** portion, and wherein the capture line comprises an outlet positioned to direct the **antimicrobial** solution onto the continuous surface of the band at an angle between less than parallel and perpendicular to the inwardly facing surface.

- PN - [NZ730587](#) A 20180427
- PR - WO2015US53398
20151001; US201414510385
20141009
- AP - [NZ20150730587](#) 20151001
- DT - I
- CCI - [B01D24/14](#) ; [B01D24/40](#) ;
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[B01D33/76](#) ; [C02F1/001](#) ;
[C02F1/006](#) ; [C02F1/283](#)
- CCA - [C02F2103/22](#) ; [C02F2103/32](#) ;
[C02F2303/04](#)
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A23L3/3463 (RU)
B01D24/14 (EP)
B01D24/40 (EP, RU)
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B01D33/76 (EP)
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C02F1/006 (EP)
C02F1/28 (RU)
C02F1/283 (EP)
- CA - C02F2103/22 (EP)
C02F2103/32 (EP)
C02F2303/04 (EP)
- PA - SAFE FOODS CORP
- TI - **Antimicrobial** application system
with **recycle** and capture
- AB - Recycling **antimicrobial** liquids in
connection with food processing
and items associated with food
processing presents a number of
special issues and concerns,
particularly adulteration,
contamination and cross-
contamination. The present
invention provides a capture unit
for use with an **antimicrobial**
application unit which
allows **antimicrobial** liquids to be
recycled without these concerns.
The capture unit includes an
upstream **filter** coupled to an
upstream capture line for
carrying effluent from

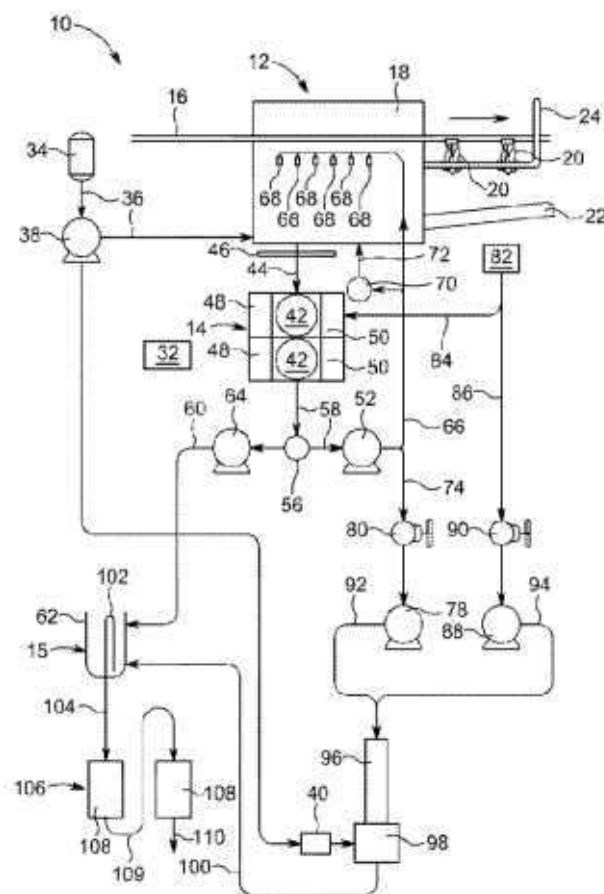


FIG. 1

the **antimicrobial** application to the upstream filter and a downstream **filter** coupled to a downstream capture line for carrying the upstream effluent filtrate from the upstream **filter** to the downstream **filter**. The upstream **filter** filters solid components from the effluent and the downstream **filter** filters an **antimicrobial** component of the effluent. The upstream **filter** comprises a screen **filter** having a rotatable body, wherein the body has an annular wall having an inwardly facing surface defining a bore to receive the effluent from the upstream capture line. The annular wall comprises a **filter** portion defining a plurality of holes along the inwardly facing surface that extend through the annular wall to **filter** a solid component of the effluent when the effluent is received thereon from the upstream capture line. The annular wall also comprises a band portion having a continuous surface that extends about the bore along the inwardly facing surface to receive the effluent from the upstream capture line onto the continuous surface before the effluent is received along the **filter** portion. The upstream capture line comprises an outlet positioned to direct the effluent onto the continuous surface of the band portion at an angle between less than parallel and perpendicular to the inwardly facing surface.

PN - [PH12017500681](#) A1 20171009

PR - US201414510385
20141009; WO2015US53398
20151001

AP - [PH20171500681](#) 20170410

DT - I

CCI - [B01D24/14](#) ; [B01D24/40](#) ;
[B01D33/11](#) ; [B01D33/50](#) ;
[B01D33/76](#) ; [C02F1/001](#) ;
[C02F1/006](#) ; [C02F1/283](#)

CCA - [C02F2103/22](#) ; [C02F2103/32](#) ;
[C02F2303/04](#)

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A23L3/3463 (RU)
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B01D33/76 (EP)
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C02F1/28 (RU)
C02F1/283 (EP)

CA - C02F2103/22 (EP)
C02F2103/32 (EP)
C02F2303/04 (EP)

PA - SAFE FOODS CORP [US]

TI - **ANTIMICROBIAL** APPLICATION
SYSTEM WITH **RECYCLE** AND
CAPTURE

AB - A capture unit for use with
an **antimicrobial** application unit
may include an upstream **filter**
and a downstream **filter**. The
upstream **filter** may be
positioned to receive effluent
from the application unit and
to **filter** solid components from
the effluent. The resultant
upstream effluent filtrate may
then be passed downstream to
the downstream **filter**. The
downstream **filter** may be used
to **filter** an **antimicrobial**
component from the upstream
effluent filtrate and the
resultant downstream effluent

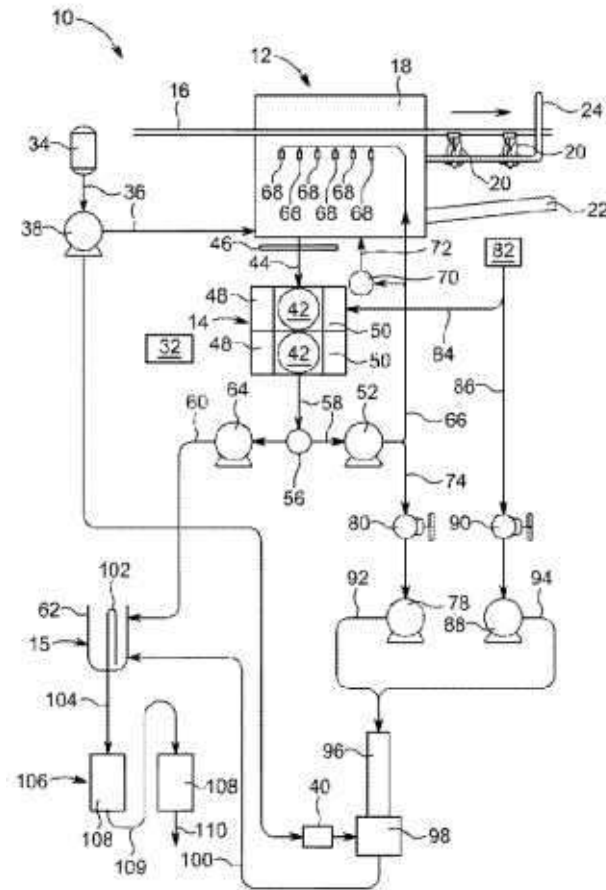


FIG. 1

filtrate may be suitable for disposal as wastewater discharge. The **antimicrobial** is preferably a quaternary ammonium compound, is more preferably an alkyipyridinium chloride, and is most preferably cetylpyridinium chloride.

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PN - [MX2017004720](#) A 20170802

PR - US201414510385
20141009; WO2015US53398
20151001

AP - [MX20170004720](#) 20151001

DT - I

CCI - [B01D24/14](#) ; [B01D24/40](#) ;
[B01D33/11](#) ; [B01D33/50](#) ;
[B01D33/76](#) ; [C02F1/001](#) ;
[C02F1/006](#) ; [C02F1/283](#)

CCA - [C02F2103/22](#) ; [C02F2103/32](#) ;
[C02F2303/04](#)

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C02F1/28 (RU)
C02F1/283 (EP)

CA - C02F2103/22 (EP)
C02F2103/32 (EP)
C02F2303/04 (EP)

PA - SAFE FOODS CORP [US]

TI - **ANTIMICROBIAL** APPLICATION
SYSTEM WITH **RECYCLE** AND
CAPTURE.

AB - A capture unit for use with
an **antimicrobial** application unit
may include an upstream **filter**
and a downstream **filter**. The
upstream **filter** may be
positioned to receive effluent
from the application unit and

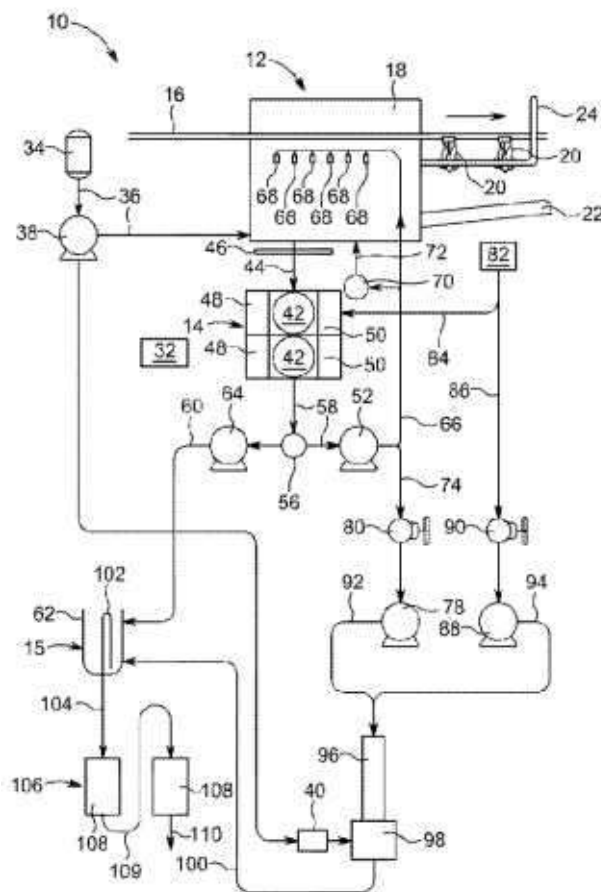


FIG. 1

to **filter** solid components from the effluent. The resultant upstream effluent filtrate may then be passed downstream to the downstream **filter**. The downstream **filter** may be used to **filter** an **antimicrobial** component from the upstream effluent filtrate and the resultant downstream effluent filtrate may be suitable for disposal as wastewater discharge. The **antimicrobial** is preferably a quaternary ammonium compound, is more preferably an alkylpyridinium chloride, and is most preferably cetylpyridinium chloride.

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PN - [CN106795011](#) A 20170531

PR - US201414510385
20141009; WO2015US53398
20151001

AP - [CN20158055022](#) 20151001

DT - I

CT - // STSE (A)
[US3260369](#) A 19660712 [A]
(GRUENEWAELDER LOU A)
[A] 1-26
* 全文 *;
[US4368125](#) A 19830111 [Y]
(MURRAY JAMES D)
[Y] 2-3,7-9
* 说明书第2栏第21行至第4栏第46
行, 图1-5 *;
[US4586287](#) A 19860506 [A]
(BLEASDALE WILLIAM W [CA], et al)
[A] 1-26
* 全文 *;
[WO2004043162](#) A2 20040527 [YX]
(NOLEN GARY [US], et al)
[Y] 2-16
* 说明书第6页第1行至第9页最后1
行, 图1-3 *
[X] 1,10;
[GB2408001](#) A 20050518 [YX]
(TOLLEY DEREK COLIN [GB], et al)
[Y] 11-16
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段, 图1-2、3a-3c、4a-4c、5 *

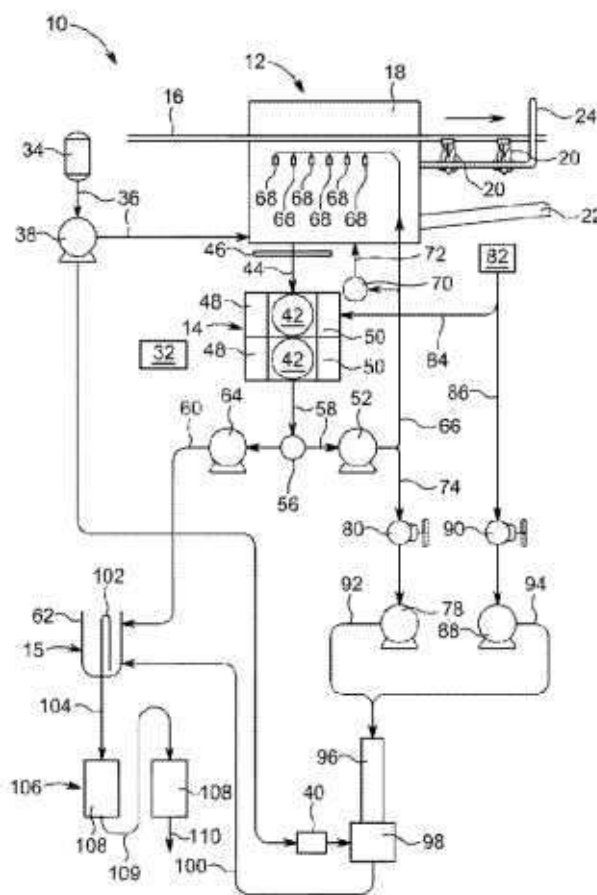


FIG. 1

[X] 17-26;
[CN1738537](#) A 20060222 [YX] (SAFE FOODS CORP [US])
[Y] 2-16
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[X] 1,10;
[US2008241269](#) A1 20081002 [A]
(VELASQUEZ DAVID J [US])
[A] 1-26
* 全文 *;
[US7651614](#) B2 20100126 [A] (KELSEY ROBERT L [US], et al)
[A] 1-26
* 全文 *;
[US2010123028](#) A1 20100520 [A]
(RAYNER RICHARD D [US])
[A] 1-26
* 全文 *;
[WO2011029205](#) A1 20110317 [Y]
(GEA HOULE INC [CA], et al)
[Y] 2-6
* 说明书第3页第1行至第26页第14行, 图10-20 *;
[US2011297609](#) A1 20111208 [A] (HU JIN [US])
[A] 1-26
* 全文 *

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B01D33/11 ; B01D33/50 ;
B01D33/76 ; C02F1/001 ;
C02F1/006 ; C02F1/283 |
| CCA | - C02F2103/22 ; C02F2103/32 ;
C02F2303/04 |
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- A23L3/3463 (RU)
- B01D24/14 (EP)
- B01D24/40 (EP, RU)
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- B01D33/11 (EP)
- B01D33/50 (EP)
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- C02F1/006 (EP)
- C02F1/28 (RU)
- C02F1/283 (EP) |
| CA | - C02F2103/22 (EP)
- C02F2103/32 (EP)
- C02F2303/04 (EP) |

- PA - SAFE FOODS CORP
- TI - **Antimicrobial** application system with **recycle** and capture
- AB - A capture unit for use with an **antimicrobial** application unit may include an upstream **filter** and a downstream **filter**. The upstream **filter** may be positioned to receive effluent from the application unit and to **filter** solid components from the effluent. The resultant upstream effluent filtrate may then be passed downstream to the downstream **filter**. The downstream **filter** may be used to **filter** an **antimicrobial** component from the upstream effluent filtrate and the resultant downstream effluent filtrate may be suitable for disposal as wastewater discharge. The **antimicrobial** is preferably a quaternary ammonium compound, is more preferably an alkylpyridinium chloride, and is most preferably cetylpyridinium chloride.

PN - [CA2963638](#) A1 20160414

PR - US201414510385
20141009; WO2015US53398
20151001

AP - [CA20152963638](#) 20151001

DT - I

CCI - [B01D24/14](#) ; [B01D24/40](#) ;
[B01D33/11](#) ; [B01D33/50](#) ;
[B01D33/76](#) ; [C02F1/001](#) ;
[C02F1/006](#) ; [C02F1/283](#)

CCA - [C02F2103/22](#) ; [C02F2103/32](#) ;
[C02F2303/04](#)

CI - A23L3/3454 (RU)
A23L3/3463 (RU)
B01D24/14 (EP)
B01D24/40 (EP, RU)
B01D33/073 (RU)
B01D33/11 (EP)
B01D33/50 (EP)
B01D33/76 (EP)
C02F1/001 (EP)
C02F1/006 (EP)
C02F1/28 (RU)
C02F1/283 (EP)

CA - C02F2103/22 (EP)
C02F2103/32 (EP)
C02F2303/04 (EP)

PA - SAFE FOODS CORP [US]

TI - **ANTIMICROBIAL** APPLICATION
SYSTEM WITH **RECYCLE** AND
CAPTURE

AB - A capture unit for use with
an **antimicrobial** application unit
may include an upstream **filter**
and a downstream **filter**. The
upstream **filter** may be
positioned to receive effluent
from the application unit and
to **filter** solid components from
the effluent. The resultant
upstream effluent filtrate may
then be passed downstream to
the downstream **filter**. The
downstream **filter** may be used
to **filter** an **antimicrobial**
component from the upstream
effluent filtrate and the
resultant downstream effluent

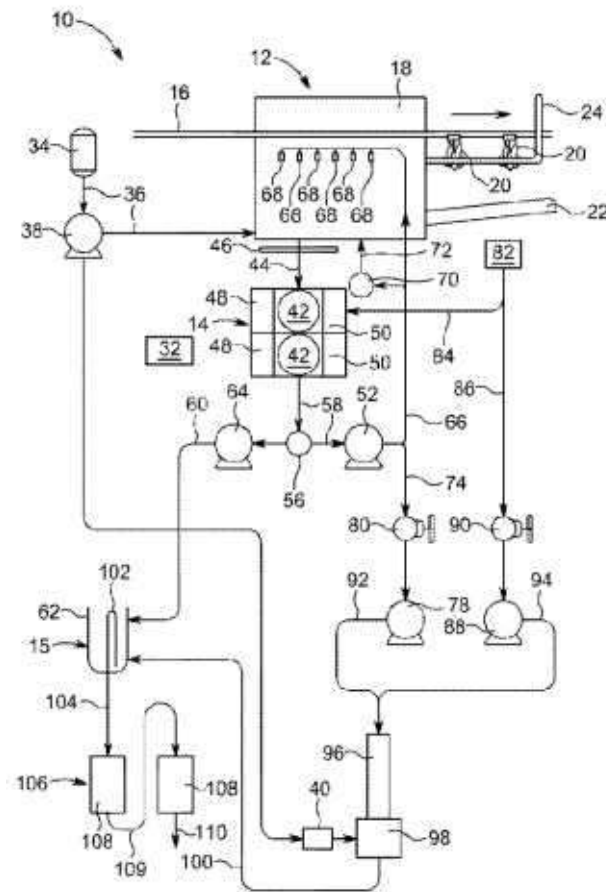


FIG. 1

filtrate may be suitable for disposal as wastewater discharge. The **antimicrobial** is preferably a quaternary ammonium compound, is more preferably an alkyipyridinium chloride, and is most preferably cetylpyridinium chloride.

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- PN - [AU2015328488](#) A1 20170420
- PNFP - AU2015328488 B2 20180628
- PR - US201414510385
20141009; WO2015US53398
20151001
- AP - [AU20150328488](#) 20151001
- DT - I
- CT - || STSE (B2)
[US5133860](#) A 19920728 [] (TAI
LIANG C [TW]);
[US2011297609](#) A1 20111208 [] (HU
JIN [US]);
[US2007025897](#) A1 20070201 []
(RHEINGANS JOE [US], et al)
- CCI - [B01D24/14](#) ; [B01D24/40](#) ;
[B01D33/11](#) ; [B01D33/50](#) ;
[B01D33/76](#) ; [C02F1/001](#) ;
[C02F1/006](#) ; [C02F1/283](#)
- CCA - [C02F2103/22](#) ; [C02F2103/32](#) ;
[C02F2303/04](#)
- CI - A23L3/3454 (RU)
A23L3/3463 (RU)
B01D24/14 (EP)
B01D24/40 (EP, RU)
B01D33/073 (RU)
B01D33/11 (EP)
B01D33/50 (EP)
B01D33/76 (EP)
C02F1/001 (EP)
C02F1/006 (EP)
C02F1/28 (RU)
C02F1/283 (EP)
- CA - C02F2103/22 (EP)
C02F2103/32 (EP)
C02F2303/04 (EP)
- PA - (A1)
SAFE FOODS CORP
(B2)

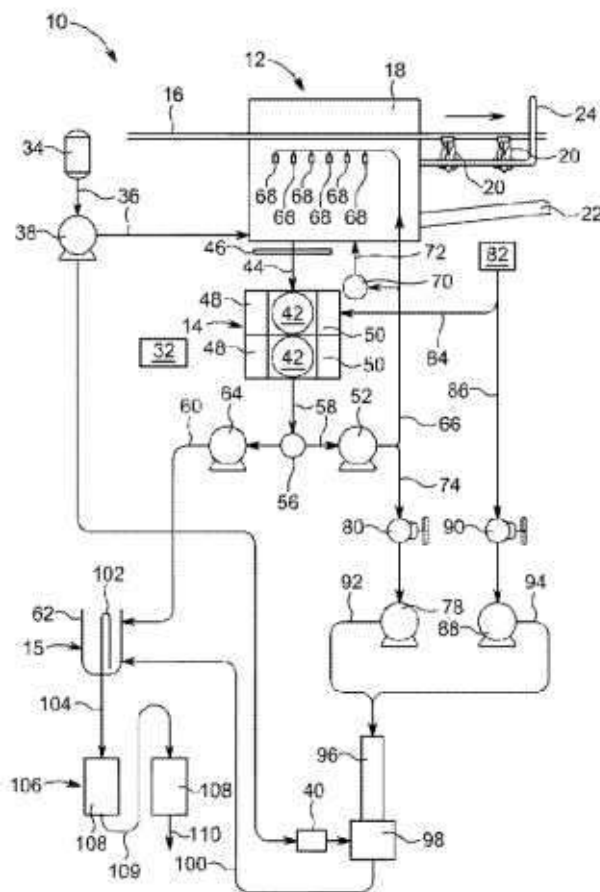


FIG. 1

SAFE FOODS CORP [US]

TI

- (A1 B2)

Antimicrobial application system with **recycle** and capture

AB

- (A1 B2)

A capture unit for use with an **antimicrobial** application unit may include an upstream **filter** and a downstream **filter**. The upstream **filter** may be positioned to receive effluent from the application unit and to **filter** solid components from the effluent. The resultant upstream effluent filtrate may then be passed downstream to the downstream **filter**. The downstream **filter** may be used to **filter** an **antimicrobial** component from the upstream effluent filtrate and the resultant downstream effluent filtrate may be suitable for disposal as wastewater discharge. The **antimicrobial** is preferably a quaternary ammonium compound, is more preferably an alkylpyridinium chloride, and is most preferably cetylpyridinium chloride.

PN - [US2016193549](#) A1 20160707

PR - [US201414510385](#)
20141009; [US20080535030](#)
20031112; [WO2003US35933](#)
20031112; [US20020425679P](#)
20021112

AP - [US201615069255](#) 20160314

DT - **

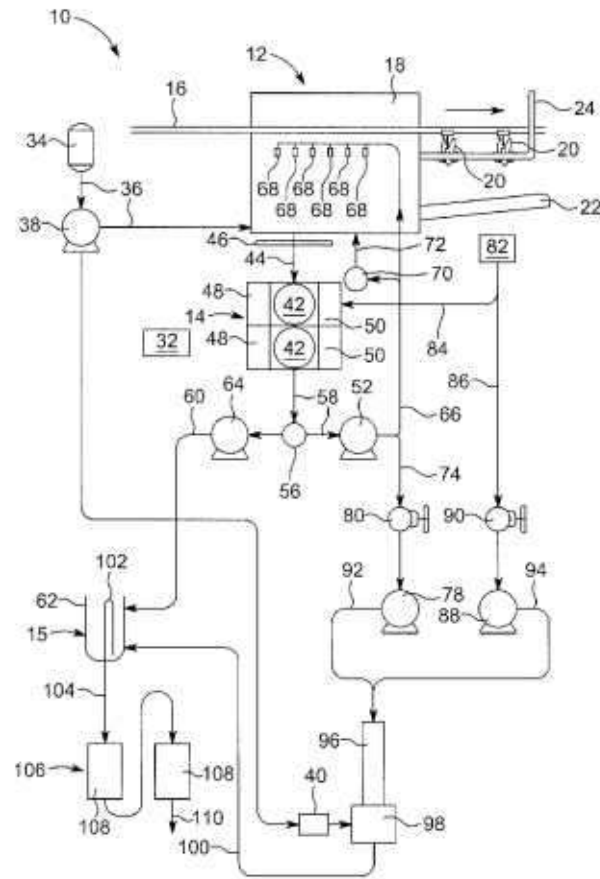
CT - || STSE (A1)
[US4379750](#) A 19830412 [Y]
(TIGGELBECK DONALD D)
[Y] 27-33, 36, 38, 42-47
* col. 1 lines 25-35 *;
[US3384240](#) A 19680521 [Y]
(BERARDI MARTIN J)
[Y] 27-33, 36, 38, 42-47
* fig. 1 col. 2 lines 25-35 | col. 3
lines 19-23 Claim 47 | claim 27 |
Claim 38 *;
[US4906381](#) A 19900306 [A]
(BARBARO RONALD D [US]);
[US4199449](#) A 19800422 [A] (SLEJKO
FRANK L [US])
- || R141 (A1)
[US4906381](#) A 19900306 []
(BARBARO RONALD D [US]);
[US4199449](#) A 19800422 [] (SLEJKO
FRANK L [US]);
[US3384240](#) A 19680521 [] (BERARDI
MARTIN J);
[US4379750](#) A 19830412 []
(TIGGELBECK DONALD D)

CTNP - || STSE (A1)
[Y] - Smith US 176,896
[Y] 27-33, 36, 38, 42-47
* fig. 1, 2 | col. 1 | *
[Y] - Suchanek US 4,753,726
[Y] 27-33, 36, 38, 42-47
* Claim 27 | fig. 1-3 col. 3 line 57
col. 4 line 39 | figure 1 | col. 1 | col.
1 lines 25-35 | fig. 1-3 | fig. 1-3
Claim 38 *

CCI - [A23B4/20](#) ; [A23B4/26](#) ; [A23L3/3463](#) ;
[A23L3/3526](#) ; [A61L2/18](#) ;
[B01D33/11](#) ; [B01D33/50](#) ;
[C02F1/283](#) ; [C02F1/50](#)

CCA - [C02F2103/32](#) ; [C02F2209/005](#) ;
[C02F2303/18](#) ; [C02F2303/185](#) ;
[C02F2303/24](#)

CI - [A23B4/20](#) (EP, US)



	- A23B4/24 (US)
	- A23B4/26 (EP, US)
	- A23L3/3454 (EP, US)
	- A23L3/3463 (EP, US)
	- A23L3/3526 (EP, US)
	- A23L3/3589 (US)
	- A61L2/18 (EP, US)
	- A61L2/24 (US)
	- B01D24/007 (US)
	- B01D24/24 (US)
	- B01D24/40 (US)
	- B01D33/11 (EP, US)
	- B01D33/50 (EP, US)
	- C02F1/283 (EP, US)
	- C02F1/50 (EP, US)
CA	- B01D33/41 (US)
	- B01D2201/084 (US)
	- C02F2103/32 (EP, US)
	- C02F2209/005 (EP, US)
	- C02F2303/18 (EP, US)
	- C02F2303/185 (EP, US)
	- C02F2303/24 (EP, US)
PA	- SAFE FOODS CORP [US]
TI	- ANTIMICROBIAL APPLICATION SYSTEM WITH RECYCLE AND CAPTURE
AB	- A capture unit for use with an antimicrobial application unit may include an upstream filter and a downstream filter . The upstream filter may be positioned to receive effluent from the application unit and to filter solid components from the effluent. The resultant upstream effluent filtrate may then be passed downstream to the downstream filter . The downstream filter may be used to filter an antimicrobial component from the upstream effluent filtrate and the resultant downstream effluent filtrate may be suitable for disposal as wastewater discharge. The antimicrobial is preferably a quaternary ammonium compound, is more preferably an alkylpyridinium

chloride, and is most preferably
cetylpyridinium chloride.

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PN - [WO2016057295](#) A1 20160414
PR - US201414510385 20141009
AP - [WO2015US53398](#) 20151001
DT - *; Rep
CT - [US] ISR (A1)
[US2011297609](#) A1 20111208 [XY]
(HU JIN [US])
[X] 1-2, 10
* ; abstract; figures 1-3, 7-8;
paragraphs [0014][0018], [0019],
[0024], [0026]-[0030], [0033] *
[Y] 3-9, 11-16, 23-26;
[US7651614](#) B2 20100126 [Y] (KELSEY
ROBERT L [US], et al)
[Y] 8-9
* ; abstract; column 3, lines 1-10;
column 6, lines 45-67 *;
[US3260369](#) A 19660712 [Y]
(GRUENWALDER LOU A)
[Y] 3-9, 23-26
* ; figures 1-4; column 1, lines 11-14;
column 4, lines 15-35, 70-75; column
5, lines 1-55; column 6, lines 2-3, 35-
60 *;
[US4586287](#) A 19860506 [Y]
(BLEASDALE WILLIAM W [CA], et al)
[Y] 12, 18, 22
* ; figures 4a-e; column 2, lines 1-20
*;
[US2008241269](#) A1 20081002 [Y]
(VELASQUEZ DAVID J [US])
[Y] 15, 21-22
* ; paragraphs [0036], [0108] *;
[WO2004043162](#) A2 20040527 [XY]
(NOLEN GARY [US], et al)
[X] 17
* ; figure 1; page 6, lines 1-30; page
7, lines 15-20; page 9, lines 1-15;
figure 1 *
[Y] 11-16, 18-22;
[US2010123028](#) A1 20100520 [Y]
(RAYNER RICHARD D [US])
[Y] 13-16, 19-22
* ; figures 1-3; paragraphs [0015],
[0019] *;
[US8012002](#) B2 20110906 [A]
(BROWN TIMOTHY D [US])

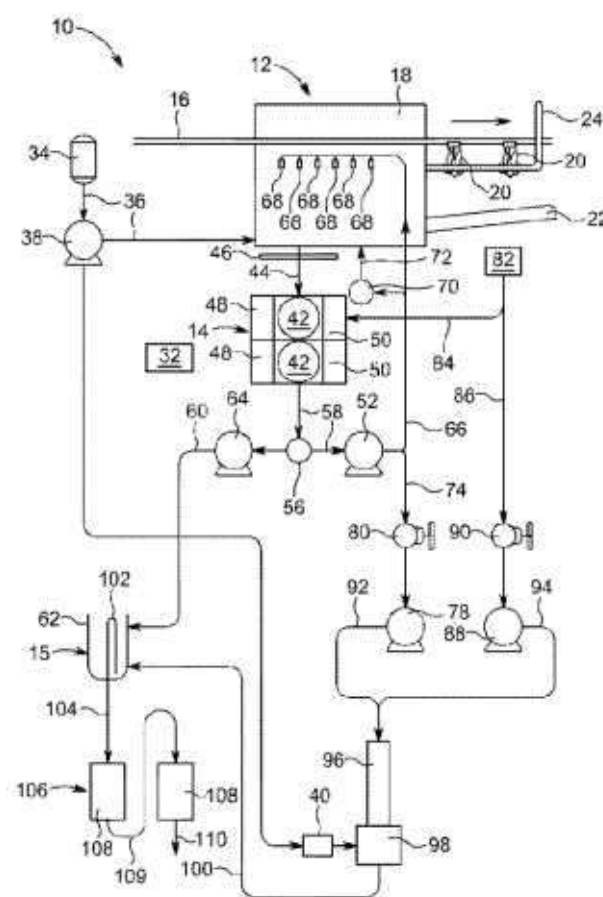


FIG. 1

[A] 12, 18, 22
 * ; entire document * ;
[US2003136862](#) A1 20030724 [A]
 (FILICICCHIA DANIEL J [US], et al)
 [A] 13, 19
 * ; entire document *

- | | |
|-----|--|
| CCI | - B01D24/14 ; B01D24/40 ;
B01D33/11 ; B01D33/50 ;
B01D33/76 ; C02F1/001 ;
C02F1/006 ; C02F1/283 |
| CCA | - C02F2103/22 ; C02F2103/32 ;
C02F2303/04 |
| CI | - A23L3/3454 (RU)
- A23L3/3463 (RU)
- B01D24/14 (EP)
- B01D24/40 (EP, RU)
- B01D33/073 (RU)
- B01D33/11 (EP)
- B01D33/50 (EP)
- B01D33/76 (EP)
- C02F1/001 (EP)
- C02F1/006 (EP)
- C02F1/28 (RU)
- C02F1/283 (EP) |
| CA | - C02F2103/22 (EP)
- C02F2103/32 (EP)
- C02F2303/04 (EP) |
| PA | - SAFE FOODS CORP [US] |
| TI | - ANTIMICROBIAL APPLICATION
SYSTEM WITH RECYCLE AND
CAPTURE |
| AB | - A capture unit for use with
an antimicrobial application unit
may include an upstream filter
and a downstream filter . The
upstream filter may be
positioned to receive effluent
from the application unit and
to filter solid components from
the effluent. The resultant
upstream effluent filtrate may
then be passed downstream to
the downstream filter . The
downstream filter may be used
to filter an antimicrobial
component from the upstream
effluent filtrate and the
resultant downstream effluent
filtrate may be suitable for |

disposal as wastewater discharge. The **antimicrobial** is preferably a quaternary ammonium compound, is more preferably an alkylpyridinium chloride, and is most preferably cetylpyridinium chloride.

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PN - [US2015021258](#) A1 20150122

PNFP - US9352983 B2 20160531

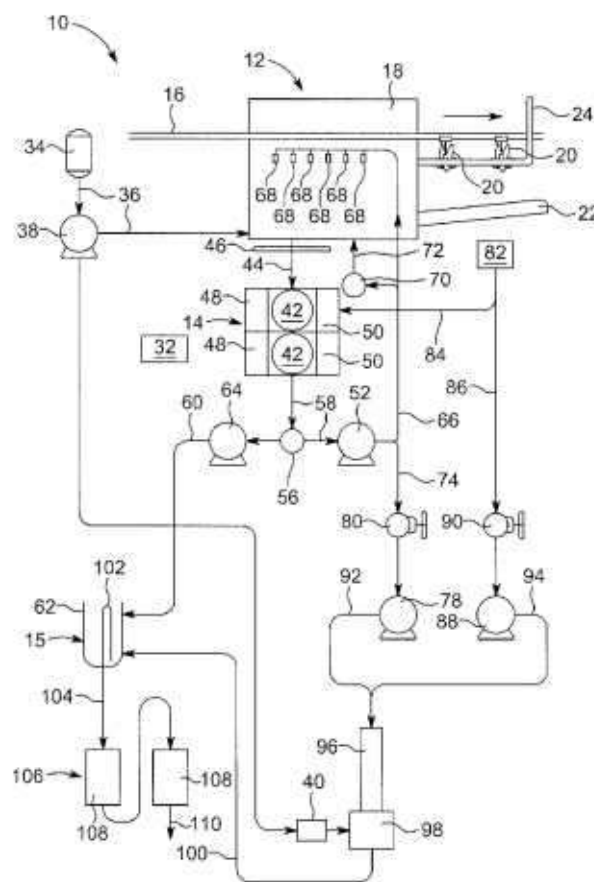
PR - US201414510385
20141009; US20030535030
20031112; WO2003US35933
20031112; US20020425679P
20021112

AP - [US201414510385](#) 20141009

DT - **

CT - || R141 (A1)
[US5133860](#) A 19920728 [] (TAI
LIANG C [TW]);
[US176896](#) A 18760502 [];
[US2012255896](#) A1 20121011 []
(COURTEMANCHE ALAIN [CA], et al);
[US2004195167](#) A1 20041007 []
(KAMO EIICHI [JP], et al);
[US2002074292](#) A1 20020620 []
(SCHLEGEL ANDREAS [DE], et al);
[US2009107919](#) A1 20090430 []
(BURBA III JOHN L [US], et al);
[US2011309036](#) A1 20111222 []
(HUSSAM ABUL [US], et al)
- || STSE (B2)
[US176896](#) A 18760502 [];
[US5133860](#) A 19920728 [] (TAI
LIANG C [TW]);
[US2002074292](#) A1 20020620 []
(SCHLEGEL ANDREAS [DE], et al);
[US2004195167](#) A1 20041007 []
(KAMO EIICHI [JP], et al);
[US2009107919](#) A1 20090430 []
(BURBA III JOHN L [US], et al);
[US2011309036](#) A1 20111222 []
(HUSSAM ABUL [US], et al);
[US2012255896](#) A1 20121011 []
(COURTEMANCHE ALAIN [CA], et al)

CCI - [A23B4/20](#) ; [A23B4/26](#) ; [A23L3/3463](#) ;
[A23L3/3526](#) ; [A61L2/18](#) ;
[B01D33/11](#) ; [B01D33/50](#) ;
[C02F1/283](#) ; [C02F1/50](#)

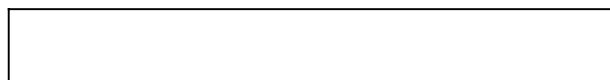


CCA	- C02F2103/32 ; C02F2209/005 ; C02F2303/18 ; C02F2303/185 ; C02F2303/24
CI	- A23B4/20 (EP, US) - A23B4/24 (US) - A23B4/26 (EP, US) - A23L3/3454 (EP, US) - A23L3/3463 (EP, US) - A23L3/3526 (EP, US) - A23L3/3589 (US) - A61L2/18 (EP, US) - A61L2/24 (US) - B01D24/007 (US) - B01D24/24 (US) - B01D24/40 (US) - B01D33/11 (EP, US) - B01D33/50 (EP, US) - C02F1/283 (EP, US) - C02F1/50 (EP, US)
CA	- B01D33/41 (US) - B01D2201/084 (US) - C02F2103/32 (EP, US) - C02F2209/005 (EP, US) - C02F2303/18 (EP, US) - C02F2303/185 (EP, US) - C02F2303/24 (EP, US)
PA	- (A1 B2) SAFE FOODS CORP [US]
TI	- (A1) ANTIMICROBIAL APPLICATION SYSTEM WITH RECYCLE AND CAPTURE - (B2) Antimicrobial application system with recycle and capture
AB	- (A1 B2) A capture unit for use with an antimicrobial application unit may include an upstream filter and a downstream filter. The upstream filter may be positioned to receive effluent from the application unit and to filter solid components from the effluent. The resultant upstream effluent filtrate may then be passed downstream to the downstream filter. The

downstream **filter** may be used to **filter** an **antimicrobial** component from the upstream effluent filtrate and the resultant downstream effluent filtrate may be suitable for disposal as wastewater discharge. The **antimicrobial** is preferably a quaternary ammonium compound, is more preferably an alkylpyridinium chloride, and is most preferably cetylpyridinium chloride.

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- PN - [KR20080054026](#) A 20080617
- PNFP - KR100859806B B1 20080924
- PR - KR20060126067 20061212
- AP - [KR20060126067](#) 20061212
- DT - I
- CT - *// STSE (B1)*
[KR20060069950](#) A 20060623 [] (J C TECHNOLOGIES INC [KR]);
[KR19990076678](#) A 19991015 [];
[KR20060013956](#) A 20060214 [] (DAEWOO ELECTRONICS CORP [KR])
- CI - B01D46/0027 (KR)
 - B01D46/0028 (KR)
 - B01D46/0036 (KR)
 - B01D46/0038 (KR)
 - B01D46/2418 (KR)
- CA - B01D2239/0618 (KR)
 - B01D2255/1021 (KR)
- PA - (A)
 KIM JEONG WOO [KR]
- TI - (A B1)
 FUNCTIONAL **FILTER** AND AIR CIRCULATION DEVICE INCLUDING THE SAME
- AB - (A)
 A functional **filter** is provided to prevent environmental pollution due to use of an adhesive, omit an adhesive coating process in the manufacturing process, remove a functional material easily, **recycle** the **filter** easily, minimize a pressure loss of the **filter**, maximize the air



contact amount of the **filter**, and improve durability of the **filter** by even adhesion, and an air circulation device including the functional **filter** is provided. A functional **filter** comprises: a resin frame(10) which is formed from a thermal bonding resin, and which has a plurality of through holes(5) formed therein such that the through holes pass through top and bottom faces of the resin frame; a granular functional material(20) filled in all or some of the respective through holes of the resin frame; and a finishing layer(30) which is made of a nonwoven fabric consisting of the same thermal bonding resin as the resin frame, and which is thermally bonded to the entire top and bottom faces of the resin frame. The thermal bonding resin is a polypropylene- or polyethylene-based resin, and the functional material is at least one selected from the group consisting of a deodorizer, an **antimicrobial** agent, an adsorbent, a catalyst, and titanium dioxide. The resin frame is formed in a structure with a cross sectional shape corresponding to that of a honeycomb structure.

[SS 47]