

Search history

Search 1: FT=(DEGASSING~ AND ANAEROBIC~ AND PURIFICATION~ AND REACTOR~) (Results 630)
Search 2: FT=(DEGASSING~ AND ANAEROBIC~ AND PURIFICATION~) AND IC =(B01D19) (Results 16)
Search 3: FT=(ANAEROBIC~ AND PURIFICATION~) AND IC =(B01D19) (Results 74)
Search 4: FT=(ANAEROBIC~ AND PURIFICATION~) AND IC =(B01D19 OR C02F3) (Results 4332)

Title: WATER CLARIFICATION TREATMENT SYSTEM THROUGH DENITRIFICATION REDUCTION BY FACULTATIVE **ANAEROBIC** BACTERIA

Abstract: The invention is a water **purification** system through denitrifying reduction with facultative anaerobes in which a nitrate harmful in the breeding of creatures such as tropical fishes and coral for appreciation and fishes and shellfishes for food and the like is decomposed and denitrifying-reduced in a short time. In this case, an aerobic circulating pathway of water reduced through a filter using aerobes is separately arranged from an **anaerobic** circulating pathway of water reduced through a closed type **anaerobic** filter device (10) using anaerobes. A nitrate produced in the aerobic circulating pathway is exuded into the **anaerobic** circulating pathway through powdery sand (5). This nitrate is decomposed in the **anaerobic** circulating pathway. A nitrogen gas inside the **anaerobic** circulating pathway produced in the decomposition of the nitrate is discharged at an isolated state so as not to contact with water in the aerobic circulating pathway.

Classifications:

International (IPC 8-9): A01K63/04 C02F3/28

C02F3/30 (Advanced/Invention);

C02F3/04 (Advanced/Non-invention);

A01K63/04 C02F3/28 C02F3/30 (Core/Invention);

C02F3/04 (Core/Non-invention)

International (IPC 1-7): A01K63/04 C02F3/30 C02F3/34

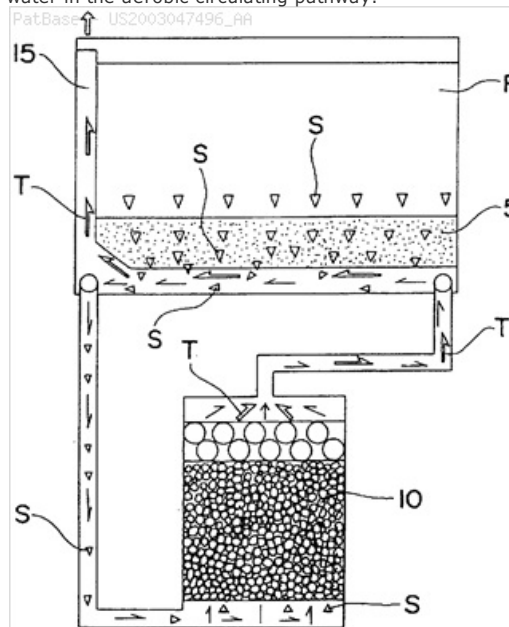
CPC: Y10S210/903 A01K63/045 A01K63/04 C02F3/04 C02F3/2806

C02F3/302 C02F2101/163 Y02W10/15

European: A01K63/04 A01K63/04B C02F3/28C C02F3/30D

M02F101/16B M02F3/04

US: 210/150 210/167.22 210/169 210/196 210/903



Family:

Publication number	Publication date	Application number	Application date
JP2000279991 A2	20001010	JP20000015712	20000125
JP4096218 B2	20080604	JP20000015712	20000125
US2003047496 AA	20030313	US20020169770	20020722
US6818123 BB	20041116	US20020169770	20020722
WO0155038 A1	20010802	WO2001JP00391	20010123

Priority:

JP19990018600 19990127 JP20000015712 20000125 WO2001JP00391 20010123

Probable Assignee: YANO MASAO

Assignee(s): (std): YANO MASAO

Inventor(s): (std): YANO MASAO

Designated states: AM AT AZ BE BF BJ BY CF CG CH CI CM CY DE DK ES FI FR GA GB GH GM GN GR GW IE IT KE KG KZ LS LU MC MD ML MR MW MZ NE NL PT RU SD SE SL SN SZ TD TG TJ TM TR TZ UG US ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
JP2000279991 A2	20050422	LSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	TEXT : JAPANESE INTERMEDIATE CODE: A621 EFFECTIVE DATE : 20050421
JP2000279991 A2	20070928	LSRE	A521	WRITTEN AMENDMENT	TEXT : JAPANESE INTERMEDIATE CODE: A821 EFFECTIVE DATE : 20070829
JP2000279991 A2	20071002	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	TEXT : JAPANESE INTERMEDIATE CODE: A131 EFFECTIVE DATE : 20071002
JP2000279991 A2	20071026	LSRE	A521	WRITTEN AMENDMENT	TEXT : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20071022

JP2000279991 A2	20080122	LSGT	+TRDD	DECISION OF GRANT OR REJECTION WRITTEN	
JP2000279991 A2	20080129	LSGT	+A01	WRITTEN DECISION TO GRANT A PATENT OR TO GRANT A REGISTRATION (UTILITY MODEL)	TEXT : JAPANESE INTERMEDIATE CODE: A01 EFFECTIVE DATE : 20080129
JP2000279991 A2	20080321	LSFE	+A61	FIRST PAYMENT OF ANNUAL FEES (DURING GRANT PROCEDURE)	TEXT : JAPANESE INTERMEDIATE CODE: A61 EFFECTIVE DATE : 20080227
JP2000279991 A2	20080321	LSGT	+R150	CERTIFICATE OF PATENT OR REGISTRATION OF UTILITY MODEL	TEXT : JAPANESE INTERMEDIATE CODE: R150
JP2000279991 A2	20080324	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 3
JP4096218 B2	20080604	LSGT	+	granted / extensions (spc, cpc, pte)	
JP4096218 B2	20080131	LSGT	+A01	特許査定書 (Decision of patent grant)	
JP4096218 B2	20080318	LSFE	R100	特許料納付書 (Patent fee payment form)	
JP4096218 B2	20110421	LSFE	R20	特許料納付書 (Patent fee payment form)	
JP4096218 B2	20110426	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 4
JP4096218 B2	20120329	LSFE	R20	特許料納付書 (Patent fee payment form)	
JP4096218 B2	20120403	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 5
JP4096218 B2	20130328	LSFE	R20	特許料納付書 (Patent fee payment form)	
JP4096218 B2	20130402	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 6
JP4096218 B2	20140320	LSFE	R20	特許料納付書 (Patent fee payment form)	
JP4096218 B2	20140325	LSFE	+R250	RECEIPT OF ANNUAL FEES	TEXT : JAPANESE INTERMEDIATE CODE: R250
JP4096218 B2	20150321	LSLE	-LAPS	CANCELLATION BECAUSE OF NO PAYMENT OF ANNUAL FEES	
JP4096218 B2	20200125	PEXP		Calculated Patent Term Expiry	
US2003047496 AA	20030313	LSPB	+	published / reissued	
US6818123 BB	20041116	LSGT	+	granted / extensions (spc, cpc, pte)	
US6818123 BB	20080502	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US6818123 BB	20121116	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US6818123 BB	20121217	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US6818123 BB	20121217	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	TEXT : PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362
US6818123 BB	20130108	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 20121116
US6818123 BB	20220904	PEXP		Calculated Patent Term Expiry (PTA 44 days)	
WO0155038 A1	20010802	LSPB	+	published / reissued	
WO0155038 A1	20020722	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 10169770 COUNTRY OF REF DOCUMENT : US
WO0155038 A1	20030305	LSNE	-122	EP: PCT APPLICATION	REF COUNTRY CODE : WO

Title: EQUIPMENT FOR THE BIOLOGICAL ACTIVATED SLUDGE TREATMENT OF WASTE-WATER AND PROCEDURE ITS OPERATION

Abstract: The equipment has a main reactor (I) and an anterior reactor (II), as well as facilities for feeding in untreated sewage, removing cleaned water and sludge and aerating the wastewater entered into the main reactor, and a mixer (2) situated in the anterior reactor (II), and it is characterised by that between the main reactor (I) and the anterior reactor (II) there is a facility or there are facilities for the recirculation of wastewater. In the course of the procedure, between the anterior reactor (II) and the main reactor (I) the waste-water aerated in the latter reactor and mechanically stirred in the former reactor is recirculated, and so the transformation of the nitrogen content of the biologically decomposable pollutants by nitrification takes place in the main reactor, while the biological elimination of the nitrates created in the course of the nitrification (denitrification) takes place in the anterior reactor, and as a result of the **anaerobic** processes biological phosphorus elimination is also ensured (Fig. 1).

Classifications:

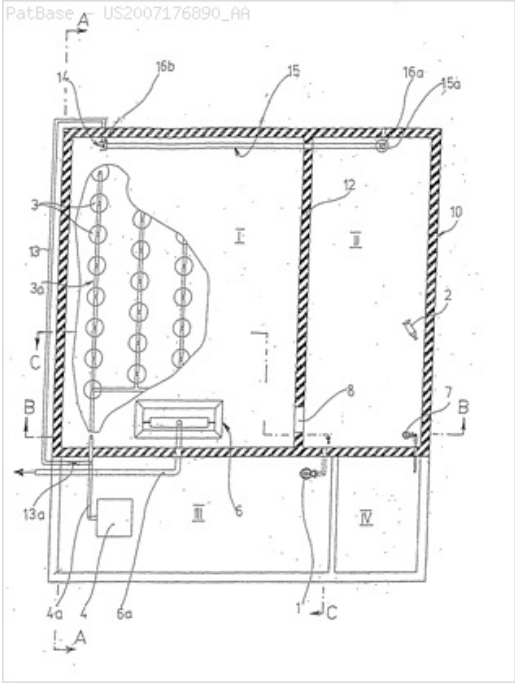
International (IPC 8-9): C02F3/00 C02F3/02 C02F3/12 C02F3/30 C02F9/00 G09G5/00 (Advanced/Invention); C02F3/00 C02F3/02 C02F3/12 C02F3/30 C02F9/00 G09G5/00 (Core/Invention)

International (IPC 1-7): C02F3/12 C02F3/30

CPC: C02F3/1263 C02F3/308 C02F3/327 C02F2209/22 Y02W10/15

European: C02F3/12N8 C02F3/30F M02F209/22 M02F3/32B

US: 210/121 210/150 210/196 210/220 210/620 210/622 345/156 345/156P



Family:

Publication number	Publication date	Application number	Application date
AT529384 E	20111115	AT20050708504T	20050216
AU2005214150 AA	20050901	AU20050214150	20050216
AU2005214150 BB	20100401	AU20050214150	20050216
CN100509650 C	20090708	CN200580005589	20050216
CN1938232 A	20070328	CN200580005589	20050216
DE602005030694 D1	20111222	DE200560030694T	20050216
EP1720803 A1	20061115	EP20050708504	20050216
EP1720803 B1	20111019	EP20050708504	20050216
ES2375142 T3	20120227	ES20050708504T	20050216
HU0400453 A0	20040428	HU20040000453	20040220
HU0400453 AB	20070928	HU20040000453	20040220
HU226855 B1	20091228	HU20040000453	20040220
IN00959MN2006 A	20070817	IN2006MN00959	20060817
IN248125 B	20110624	IN2006MN00959	20060817
PL1720803 T3	20120330	PL20050708504T	20050216
RU2006133533 A	20080327	RU20060133533	20050216
RU2349554 C2	20090320	RU20060133533	20050216
UA83725 C2	20080811	UA20060010033	20050216
US2007176890 AA	20070802	US20050590072	20050216
US7442307 BB	20081028	US20050590072	20050216
WO05080277 A1	20050901	WO2005HU00013	20050216

Priority:

HU20040000453 20040220 EP20050708504 20050216 WO2005HU00013 20050216

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Assignee(s): ORGANIKA KERN EZETTECHNOLOGIAK ZRT ; ORGANICA KORNYEZETTECHNOLOGIAK ZET ; ORGANICA KORNYEZELLECHNOLOGIAK ZRT ; ORGANICA KOERNYEZETTECHNOLOGIAK ZARTKORUEN MUKOEDO RESZVENYTARSASAG ; ORGANICA KOERNYEZETTECHNOLOGIAK ZARTKORUEN MUKOEDO RESZVENYTARSASAG ; ORGANICA KORNYEZETTECHNOLOGIAK ZARTKORUEN MUKODO RESZVENYTARSASAG ; ORGANICA KORNYEZETTECHNOLOGIAK ZARTKORUEN MUKODO R ; KOERTE ORGANICA KOERNYEZETTECHNOLOGIAK RT

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Inventor(s): CZEPEK GYULA TAKACS ZOLTAN KENYERES ISTVAN ; TSEPEK D'JULA ; KEN'ERESH ISHTVAN

Agent(s): DAVIES COLLISON CAVE PTY LTD; COLLISON AND CO; DAVIES COLLISON CAVE; PRUEFER AND PARTNER MBB PATENTANWALTE RECHTSANWALT; RONASZEKI TIBOR; JOSEPH G SEEBER; SEEBER JOSEPH G; JOSEPH G

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 KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA 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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AT529384 E	20111115	LSGT	+	granted / extensions (spc, cpc, pte)	
AT529384 E	20120415	LSLE	-RER	CEASED AS TO PARAGRAPH 5 LIT. 3 LAW INTRODUCING PATENT TREATIES	
AT529384 E	20250216	PEXP		Calculated Patent Term Expiry	
AU2005214150 AA	20050901	LSPB	+	published / reissued	
AU2005214150 BB	20100401	LSGT	+	granted / extensions (spc, cpc, pte)	
AU2005214150 BB	20100729	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU2005214150 BB	20250216	PEXP		Calculated Patent Term Expiry	
CN100509650 C	20090708	LSGT	+	granted / extensions (spc, cpc, pte)	
CN100509650 C	20090708	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN100509650 C	20090708	LSGT	+GR01	授权 (The grant of patent right)	TEXT : 授权 (AUTHORIZATION)
CN100509650 C	20190816	LSAS	TR01	专利权的转移 (Transfer of patent right)	TEXT : 专利申请权、专利权的转移 (TRANSFER OF PATENT APPLICATION OR PATENT RIGHT) PATENTEE AFTER CHANGE : 奥甘内卡水处理技术(上海)有限公司 (WATER TREATMENT TECHNOLOGY (SHANGHAI) CO., LTD. AUSTRIAN SWEET CARD) PATENTEE BEFORE CHANGE : 奥加尼卡有限公司 (GAGNY AUSTRIAN CARD CO.) EFFECTIVE DATE : 20190730
CN100509650 C	20190816	LSAS	TR01	TRANSFER OF PATENT RIGHT	
CN100509650 C	20250216	PEXP		Calculated Patent Term Expiry	
CN1938232 A	20070328	LSPB	+	published / reissued	
CN1938232 A	20070328	LSPB	+C06	PUBLICATION	
CN1938232 A	20070328	LSPB	PB01	公开 (The publication of application)	TEXT : 公开 (DISCLOSURE)
DE602005030694 D1	20111028	LSAS	R081	CHANGE OF APPLICANT/PATENTEE	PARTYTYPE : OWNER OWNER : ORGANICA KÖRNYEZETTECHNOLOGIAK ZARTKORUEN MUKÓDO RESZVENYTARS ASAG, BUDAPEST, HU OLDPARTY : ORGANICA KÖRNYEZETTECHNOLOGIAK ZARTKORUEN MUKÓDO RESZVENYTARS ASAG, BUDAPEST, HU
EP1720803 A1	20061115	LSPB	+	published / reissued	
EP1720803 A1	20061115	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20060914
EP1720803 A1	20160429	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO	COUNTRY OF REF DOCUMENT : IE PAYMENT DATE : 20160212 YEAR OF FEE PAYMENT : 12

EPO]					
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EP1720803 A1	20160531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20160225 YEAR OF FEE PAYMENT : 12
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EP1720803 B1	20111019	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : FG4D
EP1720803 B1	20111031	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP
EP1720803 B1	20111109	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : FG4D
EP1720803 B1	20111222	LSPB	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R096 REF DOCUMENT NUMBER : 602005030694 COUNTRY OF REF DOCUMENT : DE EFFECTIVE DATE : 20111222
EP1720803 B1	20120112	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : RO REF LEGAL EVENT CODE : EPE
EP1720803 B1	20120125	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : NL REF LEGAL EVENT CODE : T3
EP1720803 B1	20120227	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : ES REF LEGAL EVENT CODE : FG2A REF DOCUMENT NUMBER : 2375142 COUNTRY OF REF DOCUMENT : ES KIND CODE OF REF DOCUMENT : T3 DESIGNATED STATE(S) : EFFECTIVE DATE : 20120227
EP1720803 B1	20120326	LSRV	-LTIE	LT: INVALIDATION OF EUROPEAN PATENT OR PATENT EXTENSION	REF COUNTRY CODE : EP EFFECTIVE DATE : 20111019
EP1720803 B1	20120415	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : MK05 REF DOCUMENT NUMBER : 529384 COUNTRY OF REF DOCUMENT

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DOCUMENT : T
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EFFECTIVE DATE : 20111019

EP1720803 B1	20120430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IS NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20120219
EP1720803 B1	20120430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LT NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20111019
EP1720803 B1	20120531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20111019
EP1720803 B1	20120531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GR NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20120120
EP1720803 B1	20120531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SI NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20111019
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EP1720803 B1	20120731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BG NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20120119
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EP1720803 B1	20120926	LSGT	+26N	NO OPPOSITION FILED	EFFECTIVE DATE : 20120720
EP1720803 B1	20120928	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MC NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20120229
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EP1720803 B1	20121031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20120229
EP1720803 B1	20121115	LSRE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R097 REF DOCUMENT NUMBER : 602005030694 COUNTRY OF REF DOCUMENT : DE EFFECTIVE DATE : 20120720
EP1720803 B1	20130131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20111019
EP1720803 B1	20130628	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FI NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20111019
EP1720803 B1	20140430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LU PAYMENT DATE : 20140313 YEAR OF FEE PAYMENT : 10
EP1720803 B1	20140430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL PAYMENT DATE : 20140313 YEAR OF FEE PAYMENT : 10
EP1720803 B1	20140731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : HU NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20050216
EP1720803 B1	20140731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE	COUNTRY OF REF DOCUMENT : PT

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EP1720803 B1	20140731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE PAYMENT DATE : 20140312 YEAR OF FEE PAYMENT : 10
EP1720803 B1	20150226	LSFE	REG	REFERENCE TO A NATIONAL CODE	COUNTRY OF REF DOCUMENT : FR REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 11
EP1720803 B1	20150630	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20150228
EP1720803 B1	20150902	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : NL REF LEGAL EVENT CODE : V1 EFFECTIVE DATE : 20150901
EP1720803 B1	20150930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20150901
EP1720803 B1	20150930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LU NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20150216
EP1720803 B1	20160225	LSFE	REG	REFERENCE TO A NATIONAL CODE	COUNTRY OF REF DOCUMENT : FR REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 12
EP1720803 B1	20170131	LSFE	REG	REFERENCE TO A NATIONAL CODE	COUNTRY OF REF DOCUMENT : FR REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 13
EP1720803 B1	20170428	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : RO PAYMENT DATE : 20170214 YEAR OF FEE PAYMENT : 13
EP1720803 B1	20170428	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20170227 YEAR OF FEE PAYMENT : 13
EP1720803 B1	20170428	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20170131 YEAR OF FEE PAYMENT : 13
EP1720803 B1	20170531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IE PAYMENT DATE : 20170320 YEAR OF FEE PAYMENT : 13
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EP1720803 B1	20170630	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : TR PAYMENT DATE : 20170214 YEAR OF FEE PAYMENT : 13

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EP1720803 B1	20170630	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT PAYMENT DATE : 20170224 YEAR OF FEE PAYMENT : 13
EP1720803 B1	20180226	LSFE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 14
EP1720803 B1	20180430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20180209 YEAR OF FEE PAYMENT : 14
EP1720803 B1	20180430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20180227 YEAR OF FEE PAYMENT : 14
EP1720803 B1	20180430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES PAYMENT DATE : 20180306 YEAR OF FEE PAYMENT : 14
EP1720803 B1	20180430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : RO PAYMENT DATE : 20180213 YEAR OF FEE PAYMENT : 14
EP1720803 B1	20180531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IE PAYMENT DATE : 20180209 YEAR OF FEE PAYMENT : 14
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EP1720803 B1	20180531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT PAYMENT DATE : 20180227 YEAR OF FEE PAYMENT : 14
EP1720803 B1	20180531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PL PAYMENT DATE : 20180209 YEAR OF FEE PAYMENT : 14
EP1720803 B1	20190430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20190205 YEAR OF FEE PAYMENT : 15
EP1720803 B1	20190430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20190225 YEAR OF FEE PAYMENT : 15
EP1720803 B1	20190430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IE PAYMENT DATE : 20190205 YEAR OF FEE PAYMENT : 15
EP1720803 B1	20190430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : RO PAYMENT DATE : 20190213 YEAR OF FEE PAYMENT : 15
EP1720803 B1	20190430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES PAYMENT DATE : 20190304 YEAR OF FEE PAYMENT : 15
EP1720803 B1	20190430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT PAYMENT DATE : 20190221 YEAR OF FEE PAYMENT : 15

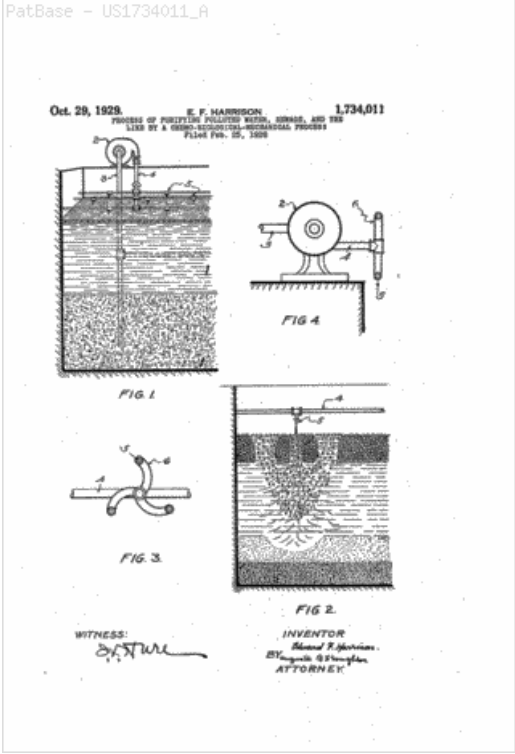
EP1720803 B1	20190430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PL PAYMENT DATE : 20190205 YEAR OF FEE PAYMENT : 15
EP1720803 B1	20250216	PEXP		Calculated Patent Term Expiry	
ES2375142 T3	20120227	LSGT	+	granted / extensions (spc, cpc, pte)	
ES2375142 T3	20250216	PEXP		Calculated Patent Term Expiry	
HU0400453 AB	20070928	LSPB	+	published / reissued	
HU226855 B1	20091228	LSGT	+	granted / extensions (spc, cpc, pte)	
HU226855 B1	20240220	PEXP		Calculated Patent Term Expiry	
IN00959MN2006 A	20070817	LSPB	+	published / reissued	
IN248125 B	20110624	LSGT	+	granted / extensions (spc, cpc, pte)	
IN248125 B	20260817	PEXP		Calculated Patent Term Expiry	
PL1720803 T3	20120330	LSGT	+	granted / extensions (spc, cpc, pte)	
RU2006133533 A	20080327	LSPB	+	published / reissued	
RU2349554 C2	20090320	LSGT	+	granted / extensions (spc, cpc, pte)	
RU2349554 C2	20250216	PEXP		Calculated Patent Term Expiry	
UA83725 C2	20080811	LSGT	+	granted / extensions (spc, cpc, pte)	
UA83725 C2	20250216	PEXP		Calculated Patent Term Expiry	
US2007176890 AA	20070802	LSPB	+	published / reissued	
US2007176890 AA	20081008	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US7442307 BB	20081028	LSGT	+	granted / extensions (spc, cpc, pte)	
US7442307 BB	20070612	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ORGANICA KORNIEZELLECHNOLOGIAK ZRT., HUNGARY OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:CZEPEK, GYULA; TAKAS, ZOLTAN; KENYERES, ISTVAN; REEL/FRAME:019418/0051 EFFECTIVE DATE : 20060819
US7442307 BB	20081008	LSGT	PAT1	Patented Case	
US7442307 BB	20121026	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US7442307 BB	20160426	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US7442307 BB	20250405	PEXP		Calculated Patent Term Expiry (PTA 48 days)	
WO05080277 A1	20050901	LSPB	+	published / reissued	
WO05080277 A1	20060817	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 959/MUMNP/2006 COUNTRY OF REF DOCUMENT : IN
WO05080277 A1	20060821	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2005214150 COUNTRY OF REF DOCUMENT : AU
WO05080277 A1	20060821	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 200580005589.3 COUNTRY OF REF DOCUMENT : CN
WO05080277 A1	20060821	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 10590072 COUNTRY OF REF DOCUMENT : US

WO05080277 A1	20060821	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2007176890 COUNTRY OF REF DOCUMENT : US
WO05080277 A1	20060822	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO05080277 A1	20060822	LSWD	-WWW	WIPO INFORMATION: WITHDRAWN IN NATIONAL OFFICE	TEXT : DE
WO05080277 A1	20060907	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2005214150 COUNTRY OF REF DOCUMENT : AU DATE OF REF DOCUMENT : 20050216 KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO05080277 A1	20060907	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 2005214150 COUNTRY OF REF DOCUMENT : AU
WO05080277 A1	20060914	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2005708504 COUNTRY OF REF DOCUMENT : EP
WO05080277 A1	20060920	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2006133533 COUNTRY OF REF DOCUMENT : RU
WO05080277 A1	20061115	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 2005708504 COUNTRY OF REF DOCUMENT : EP
WO05080277 A1	20070802	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 10590072 COUNTRY OF REF DOCUMENT : US

considerable pressure through the atmosphere into the body of the material so that it penetrates a considerable distance into such material to cause bacteriophages to produce elutriation; and a vertical shaft of degrees of temperature of the mechanical purification the improvement which consists in introducing enzyme, bacteriophage and precipitated matter, the product of the process, with air from above by discharging jets of fluid extracted from the process at about the point of the longest detention period under considerable pressure downwardly revolving in a circular movement through the atmosphere into the body of the material being treated so that it penetrates to the muck at the bottom thereof. 26. In the chemo - biological - mechanical **purification** process, the improvement which consists in introducing enzyme and bacteriophage by discharging jets under considerable pressure of fluid extracted from the process at about the point of the longest detention period in combination with a portion of the muck, the product of the process, with air from above revolving in a circular movement through the atmosphere into the body of the material being treated so that it penetrates for a considerable distance into the material to cause bacteriophages and to produce elutriation and sedimentation by agglutination. 27. In the chemo - biological - mechanical **purification** process for sewage and like materials, the improvement which consists in collecting a body of the material and discharging jets of such fluid extracted from the process under considerable pressure downwardly through the atmosphere into the liquid being treated so that it penetrates a considerable distance into the body of such liquid to produce violent agitation, aeration, circulation, elutriation, and sedimentation by agglutination.

Classifications:

International (IPC 8-9): B01F3/04 B01F5/02 C02F3/12 (Advanced/Invention); B01F3/04 B01F5/02 C02F3/12 (Core/Invention)
International (IPC 1-7): C02C1/06 C02C1/10
CPC: Y10S261/75 C02F3/1294 B01F3/0473 B01F5/02 Y02W10/15
European: B01F3/04C6 B01F5/02 C02F3/12V6
US: 210/606 210/629 210/630 261/121.1 261/DIG.75 71/12 71/7



Family:

Publication number	Publication date	Application number	Application date
US1734011 A	19291029	US19260090680	19260225

Priority:

US19260090680 19260225

Probable Assignee: CHEMOMECHANICAL WATER IMPROVEM

Assignee(s): (std): CHEMOMECHANICAL WATER IMPROVEM

Assignee(s): CHEMOMECHANICAL WATER IMPROVEMENT CO INC ; CHEMOMECHANICAL WATER IMPROVEMENT COMPANY INC

Inventor(s): (std): HARRISON EDWARD F

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US1734011 A	19291029	LSGT	+	granted / extensions (spc, cpc, pte)	

Title: WATER **PURIFICATION** METHOD AND LIQUID FOR WATER **PURIFICATION**

Abstract: The present invention can efficiently reduce nitrates, nitrites, etc. generated in nature such as swamps, ponds, lakes, rivers, seas, and marshy places or in aqueous environments of artificial devices such as ornamental or aquaculture water tanks, and can suppress the occurrence of mosses, etc. by a liquid for water **purification** obtained by applying an external force to a culture solution comprising raw water containing a microbial group including **anaerobic** microbes and particles composed of polyhydroxyalkanoate after the start of culture by the end of the culture to destroy at least part of biofilms formed on the surfaces of the particles.

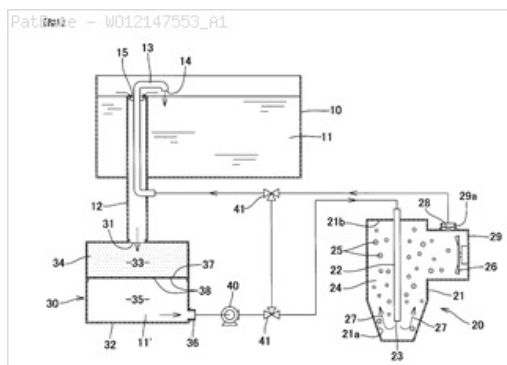
Classifications:

International (IPC 8-9): A01K63/04 C02F3/00 C02F3/28 C02F3/34 (Advanced/Invention);

C12N1/21 C12N15/09 (Advanced/Non-invention)

CPC: A01K63/04 C02F3/2806 C02F2103/007

European: A01K63/04 C02F3/28C M02F103/00H



Family:

Publication number	Publication date	Application number	Application date
JP2014132831 A2	20140724	JP20110102565	20110429
WO12147553 A1	20121101	WO2012JP60256	20120416

Priority:

JP20110102565 20110429

Probable Assignee: KANEKA CORP

Assignee(s): (std): FUJIWARA HIROSHI ; KANEKA CORP ; SUGAYA TAKAHIKO

Inventor(s): (std): SUGAYA TAKAHIKO ; FUJIWARA HIROSHI ; SUGAYA TAKEHIKO

Agent(s): YANAGINO TAKAO 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 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 QA RO RS RU RW 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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
JP2014132831 A2	20140805	LSWD	-A300	WITHDRAWAL OF APPLICATION BECAUSE OF NO REQUEST FOR EXAMINATION	TEXT : JAPANESE INTERMEDIATE CODE: A300 EFFECTIVE DATE : 20140805
WO12147553 A1	20121101	LSPB	+	published / reissued	
WO12147553 A1	20131029	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO12147553 A1	20140528	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 12776180 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :
WO12147553 A1	20140617	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : JP

Title: COMBINED OXYGENATION AND SETTLING TANK

Abstract: Sewage to be treated is fed to aeration tank 1 by inlet 59 where it is oxygenated by a surface aerator of the type described in Specification 1,085,760. Flow takes place as indicated by arrows F1 to F5 with clarified liquid leaving by outlet 62. A fluidized bed of activated sludge is maintained in settling chambers 63 and 51 with a withdrawal of excess sludge taking place through outlet 64. The base of aeration tank 1 may be altered (Figs. 1A, 1B, 5 and 6, not shown) or replaced with vanes (Fig. 1C, not shown). Lime may be added to the surplus sludge before drying. A compensating tank which allows for excess feed to a system is described in relation to Figs. 2 and 4 (not shown).

Classifications:

International (IPC 8-9): B01D21/00 C02F3/12

C02F3/16 (Advanced/Invention);

B01D21/00 C02F3/12 C02F3/14 (Core/Invention)

International (IPC 1-7): B01F5/12 C02C1/10

CPC: Y02W10/15 B01D21/00 B01D21/2488 C02F3/165 B01D21/0012

B01D21/003 B01D21/16 B01D21/2427 B01D21/245 C02F3/12

B01D21/302 B01D21/34 B01D21/0039 B01D21/08 B01D21/30

European: 85C6A B01D21/00 B01D21/00F B01D21/00N B01D21/08

B01D21/16 B01D21/24N B01D21/30 C02F3/12 C02F3/16B

PatBase - GB1118008_A



Family:

Publication number	Publication date	Application number	Application date
BE654462 A	19650215		19641016
BE658552 A	19650517		19650120
FR1448469 A	19660805	FR19650032745	19650927
GB1118008 A	19680626	GB19650041164	19650928
NL6512794 A	19660418	NL19650012794	19651001

Priority:

BE19640004222 19641016 BE19650007934 19650120 FR19650032745 19650927

Probable Assignee: MELOTTE ECREMEUSES

Assignee(s): (std): MELOTTE ECREMEUSES

Assignee(s): ECREMEUSES MELOTTE SOC ANONYME ; ECREMEUSES MELOTTE SOCIETE ANONYME

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
BE654462 A	19650215	LSPB	+	published / reissued	
BE654462 A	19841016	PEXP		Calculated Patent Term Expiry	
BE658552 A	19650517	LSPB	+	published / reissued	
BE658552 A	19850120	PEXP		Calculated Patent Term Expiry	
FR1448469 A	19660805	LSGT	+	granted / extensions (spc, cpc, pte)	
FR1448469 A	19850927	PEXP		Calculated Patent Term Expiry	
GB1118008 A	19680626	LSGT	+	granted / extensions (spc, cpc, pte)	
GB1118008 A	19850928	PEXP		Calculated Patent Term Expiry	
NL6512794 A	19660418	LSPB	+	published / reissued	

Title: A METHOD AND A BIO REACTOR FOR USE IN THE **PURIFICATION** OF WATER, AND A BIO-ELEMENT FOR USE IN THIS CONNECTION

Abstract: In a method for use in biological **purification** of waste water, the water is passed through at least one bioreactor containing bioelements on which microorganisms grow which can produce the desired conversion of the polluting substances in the waste water. In addition to nitrification, the bioreactor is used for denitrification by periodically carrying out flushing of the bioelements with a fluid, preferably air or deoxidized water, for so short periods of time that the microorganisms do not suffer damage, but sufficient for the bioelements to be cleaned of dead biomaterial. Also disclosed is a system which, with various units, may be designed for concrete wishes, and moreover a bioelement is disclosed.

Classifications:

International (IPC 8-9): C02F1/32 C02F1/78 C02F3/06 C02F3/26 C02F3/30 (Advanced/Invention);

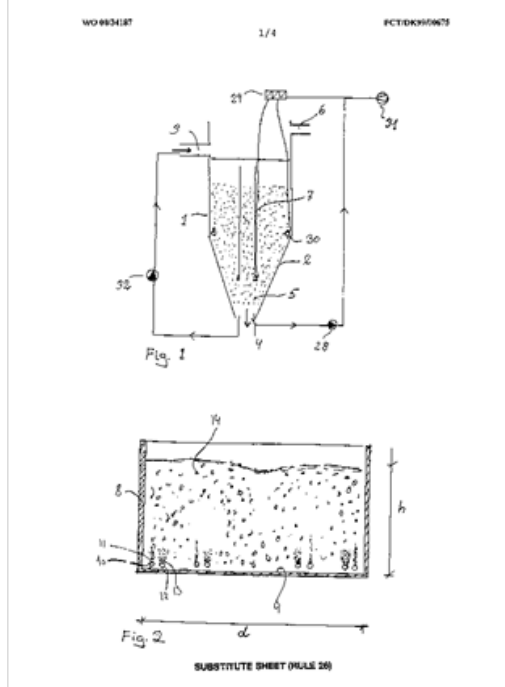
C02F1/32 C02F1/78 (Advanced/Non-invention);
C02F3/06 C02F3/26 C02F3/30 (Core/Invention);
C02F1/32 C02F1/78 (Core/Non-invention)

International (IPC 1-7): C02F3/00 C02F3/08 C02F3/10 C02F3/28

CPC: Y02W10/15 C02F3/301 C02F1/32 C02F1/78 C02F3/06 C02F3/26 C02F3/302

European: C02F3/06 C02F3/26 C02F3/30B C02F3/30D M02F1/32 M02F1/78

PatBase - WO0034187_A1



Family:

Publication number	Publication date	Application number	Application date
AU200015496 A1	20000626	AU20000015496	19991203
AU200015496 A5	20000626	AU20000015496	19991203
WO0034187 A1	20000615	WO1999DK00675	19991203

Priority:

DK19980001601 19981204 WO1999DK00675 19991203

Probable Assignee: KNUD PETER BROCKDORFF

Assignee(s): (std): BROCKDORFF KNUD PETER

Assignee(s): KNUD PETER BROCKDORFF

Inventor(s): (std): BROCKDORFF KNUD PETER

Inventor(s): KNUD PETER BROCKDORFF

Designated states: AE AL AM AT AU AZ BA BB BE BF BG BJ BR BY CA CF CG CH CI CM CN CU CY CZ DE DK 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 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 US UZ VN YU ZA ZW

Legal status (INPADOC)

[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
AU200015496 A1	20000626	LSPB	+	published / reissued	
AU200015496 A1	20010830	LSLE	-MK6	APPLICATION LAPSED SECTION 142(2) (F)/REG. 8.3(3) - PCT APPLIC. NOT ENTERING NATIONAL PHASE	
WO0034187 A1	20000615	LSPB	+	published / reissued	
WO0034187 A1	20000302	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2000 15496 COUNTRY OF REF DOCUMENT : AU KIND CODE OF REF DOCUMENT : A DESIGNATED

WO0034187 A1	20011011	LSWD	REG	REFERENCE TO NATIONAL CODE	STATE(S) :
					REF COUNTRY CODE : DE REF LEGAL EVENT CODE : 8642
WO0034187 A1	20020410	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF COUNTRY CODE : WO

Title: FOOD WASTE TREATMENT METHOD

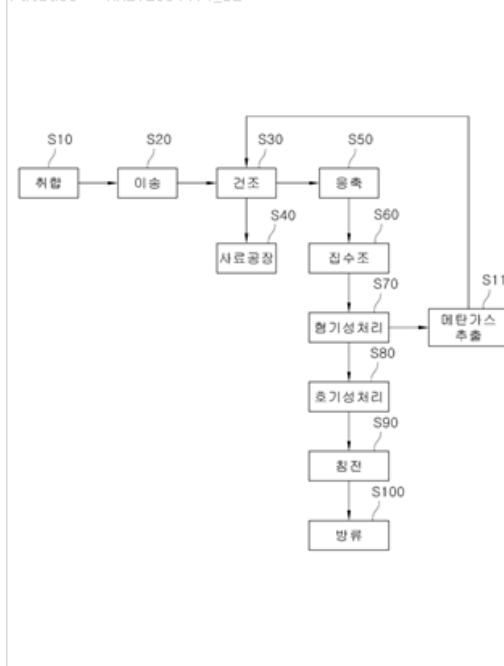
Abstract: The present invention relates to a food waste treatment method comprising an indirect heating type drying process, capable of converting food waste into dry feed and discharging wastewater through a plurality of **purification** processes. Food waste obtained from a plurality of places is converted into dry feed through a drying process, in which odor is primarily removed by evaporating moisture from a drying chamber (100) through a collection process (S10) and a transfer process (S20) to a factory facility, and then, the feed is transferred to a feed factory (S40) to be used for livestock. Wastewater is cooled through a condensing process (S50) and transferred (S60) to a water collection tank and is made to go through an **anaerobic** process (S70), an aerotropic process (S80), and a precipitation and **purification** process (S90), and then, solids in the lower layer are returned to a drying process (S30), and only the wastewater in the upper layer is discharged. As such, the present invention is capable of maximizing the efficiency of treatment and increasing an economic feasibility through the recycling of trash.

Classifications:

International (IPC 8-9): A23K30/20 B01D53/00 C02F3/30 F26B15/18 F26B21/00 (Advanced/Invention)

CPC: A23K30/20 B01D53/005 C02F3/30 F26B15/18 F26B21/005 F26B2200/04 Y02P70/40 Y02W10/12

PatBase - KR101864404_B1

**Family:**

Publication number	Publication date	Application number	Application date
KR101864404 B1	20180604	KR20170174321	20171218

Priority:

KR20170174321 20171218

Probable Assignee: ECOINNOVATION CO LTD**Assignee(s):** (std): ECOINNOVATION CO LTD**Assignee(s):** NOTE ECO INNOVATION ; ECOINNOVATION CO**Inventor(s):** (std): SEO SI WEON**Legal status (INPADOC)**

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
KR101864404 B1	20180604	LSGT	+	granted / extensions (spc, cpc, pte)	
KR101864404 B1	20180524	LSGT	+E701	DECISION TO GRANT OR REGISTRATION OF PATENT RIGHT	
KR101864404 B1	20180529	LSGT	+GRNT	WRITTEN DECISION TO GRANT	
KR101864404 B1	20371218	PEXP		Calculated Patent Term Expiry	

Title: IMMOBILIZATION METHODS FOR ORGANIC MOLECULES TELOMERS AND POLYMERS ON SOLID SUBSTRATES

Abstract: The immobilization of organic molecules, telomers and polymers on solid substrates. Organic molecules, telomers and polymers are immobilized onto solid substrates, especially particulate materials via covalent bonds that provide greater thermal and organic stability than other methods of immobilization.

Classifications:

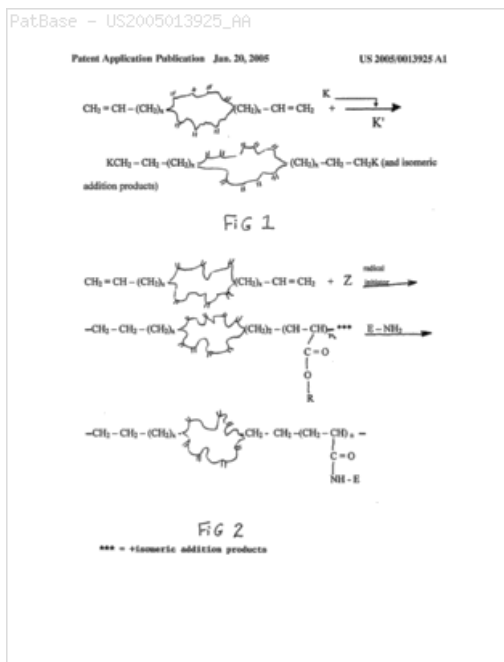
International (IPC 8-9): B01D19/04 B01J20/286 B01J31/00 B01J31/02 B01J31/16 B05D1/18 B05D1/38 B05D3/10 (Advanced/Invention); C22B3/00 (Advanced/Non-invention); B01D19/02 B01J20/281 B01J31/00 B01J31/02 B01J31/16 B05D1/18 B05D1/38 B05D3/10 (Core/Invention); C22B3/00 (Core/Non-invention)

International (IPC 1-7): B05D3/00 C12M1/34

CPC: Y02P10/234 B01J20/286 B01D19/0404 B01J31/003 B01J31/0272 B01J31/1633 B05D1/185 B82Y30/00 B82Y40/00 C22B3/0005

European: B01D19/04D B01J20/286 B01J31/00E B01J31/02F B01J31/16C2B B05D1/18C B82Y30/00 B82Y40/00 M22B3/00D2

US: 427/2.11 427/2.110P 435/287.2 435/287.200S



Family:

Publication number	Publication date	Application number	Application date
US2005013925 AA	20050120	US20040865708	20040610
WO05010086 A2	20050203	WO2004US20425	20040624
WO05010086 A3	20090326	WO2004US20425	20040624

Priority:

US20030488195P 20030717 US20040865708 20040610

Probable Assignee: DIAZEM CORP

Assignee(s): (std): CABEY MELVIN ; DIAZEM CORP ; KIM YUNG K

Inventor(s): (std): CABEY MELVIN ; KIM YUNG K

Inventor(s): KIM YUNG

Agent(s): MCKELLAR STEVENS AND HILL PLLC

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 KP KR KZ LC LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA 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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US2005013925 AA	20050120	LSPB	+	published / reissued	
US2005013925 AA	20101006	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	
WO05010086 A2	20050203	LSPB	+	published / reissued	
WO05010086 A2	20060118	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO05010086 A2	20061108	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF COUNTRY CODE : WO

Title: BIOCOMPOSITE MATERIAL FOR **PURIFICATION** OF SEWAGE WATERS FROM NITRITE, NITRATE AND PHOSPHATE IONS

Abstract: Application: the invention relates to biocomposite material containing non-woven polymer and immobilized organism aggregation, and it may be used for **purification** of household and industrial sewage waters from contamination with nitrites, nitrates and phosphates. Biocomposite material is non-woven polymer based on acrylonitrile and methyl methacrylate copolymer derived by aerodynamic formation; filler which is active carbon and milled non-sterile plants of the Sphagnum genus or active carbon and cell walls of water plants of the Duckweeds (Lemnaceae) family incorporated into polymer during its aerodynamic formation totaling 10-50 percent of polymer weight; and immobilized microorganism aggregation that reduces concentration of nitrate, nitrite and phosphate ions. The technical result involves improvement of operational characteristics and intensification of biological **purification** process due to increase in the material specific surface for immobilization of microorganisms. 2 examples.

Classifications:

International (IPC 8-9): B01J19/30 C02F101/10 C02F101/16 C02F3/00 C02F3/10 C02F3/32 (Advanced/Invention); C02F1/28 C02F101/10 C02F101/16 C02F3/32 (Advanced/Non-invention)

CPC: C02F3/10 C02F3/106 C02F3/32 C02F3/108 C02F2101/105 C02F2101/163 C02F2101/166 Y02W10/15

Family:

Publication number	Publication date	Application number	Application date
CA2957653 AA	20170208	CA20152957653	20151209
CN107074597 A	20170818	CN201580047978	20151209
IN201727027442 A	20170929	IN201727027442	20170802
RU2015123301 A	20170110	RU20150123301	20150617
RU2608527 C2	20170119	RU20150123301	20150617
WO16204649 A1	20161222	WO2015RU00864	20151209

Priority:

RU20150123301 20150617 WO2015RU00864 20151209

Probable Assignee: PUBLICHNOE AKTSIONERNOE OBSHCHESTVO GAZPROM

Assignee(s): (std): PUBLICHNOE AKTSIONERNOE OBSHCHESTVO GAZPROM ; PUBLICHNOE AKTSIONERNOE OBSHCHESTVO GAZPROM

Assignee(s): KIRPICHNIKOV MIKHAIL PETROICH ; SANDZHIEVA DELGIR ANDREEVNA ; ISHKOV ALEKSANDR GAVRILOVICH ; PONOMARENKO ANNA DMITRIEVNA ; LOBAKOVA ELENA SERGEEVNA ; IVANOVA EKATERINA ALEKSANDROVNA ; SHARONOVA ANASTASIA NIKOLAEVNA ; BELOUSOVA ELENA EVGENYEVNA ; DEDOV ALEKSEI GEORGIEVICH ; DOLNIKOVA GALINA ALEKSANDROVNA ; IDIATULOV RAFET KUTUZOVICH

Inventor(s): (std): ISHKOV ALEKSANDR GAVRILOVICH ; SHARONOVA ANASTASIA NIKOLAEVNA ; IVANOVA EKATERINA ALEKSANDROVNA ; KIRPICHNIKOV MIKHAIL PETROICH ; LOBAKOVA ELENA SERGEEVNA ; DEDOV ALEKSEI GEORGIEVICH ; PONOMARENKO ANNA DMITRIEVNA ; SANDZHIEVA DELGIR ANDREEVNA ; DOLNIKOVA GALINA ALEKSANDROVNA ; IDIATULOV RAFET KUTUZOVICH ; BELOUSOVA ELENA EVGENYEVNA ; KIRPICHNIKOV MIKHAIL PETROVICH ; SHARONOVA ANASTASIYA NIKOLAEVNA ; DEDOV ALEKSEJ GEORGIEVICH ; BELOUSOVA ELENA EVGENEVNA

Agent(s): BLAKE CASSELS AND GRAYDON LLP

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 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 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 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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CA2957653 AA	20170208	LSPB	+	published / reissued	
CA2957653 AA	20170604	LSES	+EEER	EXAMINATION REQUEST	EFFECTIVE DATE : 20170208
CN107074597 A	20170818	LSPB	+	published / reissued	
CN107074597 A	20170818	LSPB	PB01	PUBLICATION	
IN201727027442 A	20170929	LSPB	+	published / reissued	
RU2015123301 A	20170110	LSPB	+	published / reissued	
RU2608527 C2	20170119	LSGT	+	granted / extensions (spc, cpc, pte)	
RU2608527 C2	20350617	PEXP		Calculated Patent Term Expiry	
WO16204649 A1	20161222	LSPB	+	published / reissued	
WO16204649 A1	20170208	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2957653 COUNTRY OF REF DOCUMENT : CA
WO16204649 A1	20171219	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO16204649 A1	20180711	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 15843073 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF

Title: LIQUID TREATMENT METHOD AND APPARATUS

Abstract: A liquid treatment method for removing impurities from an impurity-containing liquid comprises a collection step of collecting a precipitated solid component from an impurity-containing liquid in a tank containing the liquid along with a liquid component of the liquid, a separation step of separating the solid component collected in the collection step from the liquid component collected in the collection step, a return step of returning to the tank the liquid component separated from the solid component in the separation step, and a **purification** step of obtaining a purified liquid from the impurity-containing liquid contained in the tank. A liquid treatment apparatus for removing impurities from an impurity-containing liquid comprises the tank, a collection means for collecting the solid component along with the liquid component, a separation means for separating the solid component collected by the collection means from the liquid components collected by the collection means, a return means for returning to the tank the liquid component separated from the solid component by the separation means, and a **purification** means for obtaining a purified liquid from the impurity-containing liquid contained in the tank.

Classifications:

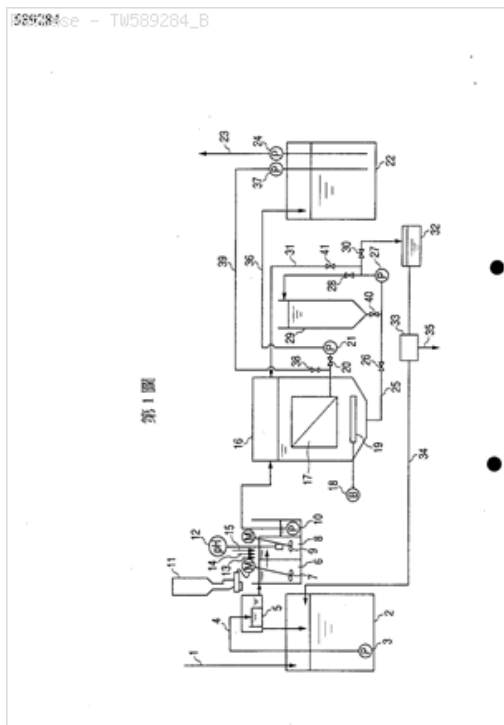
International (IPC 8-9): B01D15/00 B01D21/01 B01D21/02 B01D21/24 B01D71/02 C02F1/28 C02F1/50 C02F1/52 C02F1/76 C02F3/20 C02F9/00 C02F9/02 (Advanced/Invention); C02F1/28 C02F1/44 C02F1/52 C02F1/66 C02F1/76 C02F9/02 (Advanced/Non-invention); B01D15/00 B01D21/01 B01D21/02 B01D21/24 B01D71/00 C02F1/28 C02F1/50 C02F1/52 C02F1/76 C02F3/20 C02F9/00 C02F9/02 (Core/Invention); C02F1/28 C02F1/44 C02F1/52 C02F1/66 C02F1/76 (Core/Non-invention)

International (IPC 1-7): B01D15/00 B01D21/01 B01D21/02 B01D21/24 B01D71/02 C02F1/28 C02F1/42 C02F1/50 C02F1/52 C02F1/76 C02F3/20 C02F9/00 C02F9/02 C02F9/04

CPC: C02F1/283 C02F1/444 C02F1/52 C02F1/66 C02F1/76 C02F2103/12 Y02W10/15 C02F9/00

European: C02F9/00 M02F1/28D M02F1/44D M02F1/52 M02F1/66 M02F1/76 M02F103/12

US: 210/660 210/723

**Family:**

Publication number	Publication date	Application number	Application date
■ CN1475451 A	20040218	CN20031049421	20030618
■ EP1375439 A1	20040102	EP20030013709	20030617
■ JP2004074146 A2	20040311	JP20030165378	20030610
■ KR20040002594 A	20040107	KR20030039031	20030617
■ TW200400159 A	20040101	TW20030116436	20030617
■ TW589284 B	20040601	TW20030116436	20030617
■ US2004026326 AA	20040212	US20030461475	20030616

Priority:

JP20020177509 20020618 JP20030165378 20030610

Probable Assignee: CANON INC

Assignee(s): (std): CANON INC ; CANON KK

Assignee(s): CANON K K ; CANON KABUSHIKI KAISHA

Inventor(s): (std): HOSAKA AKIHITO ; AKINO SHOJI ; OTSUKA HIROSHI ; AKISHINOBU HOSAKA ; SHOJI AKINO ; HIROSHI OTSUKA

Inventor(s): HOSAKA AKISHINOBU

Designated states: DE FR GB

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN1475451 A	20040218	LSPB	+	published / reissued	
CN1475451 A	20040218	LSPB	+C06	PUBLICATION	
CN1475451 A	20060614	LSDW	-C02	DEEMED WITHDRAWAL OF PATENT APPLICATION AFTER PUBLICATION (PATENT LAW 2001)	

EP1375439 A1	20040102	LSPB	+	published / reissued	
EP1375439 A1	20040901	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20040702
EP1375439 A1	20040922	LSFE	+AKX	DESIGNATION FEES PAID	COUNTRY OF REF DOCUMENT : DE COUNTRY OF REF DOCUMENT : FR COUNTRY OF REF DOCUMENT : GB
EP1375439 A1	20061004	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	EFFECTIVE DATE : 20060210
KR20040002594 A	20040107	LSPB	+	published / reissued	
KR20040002594 A	20030617	LSES	A201	REQUEST FOR EXAMINATION	
KR20040002594 A	20050310	LSES	-E902	NOTIFICATION OF REASON FOR REFUSAL	
KR20040002594 A	20050812	LSRV	-E601	DECISION TO REFUSE APPLICATION	
TW200400159 A	20040101	LSPB	+	published / reissued	
TW589284 B	20040601	LSGT	+	granted / extensions (spc, cpc, pte)	
TW589284 B	20230617	PEXP		Calculated Patent Term Expiry	
US2004026326 AA	20040212	LSPB	+	published / reissued	
US2004026326 AA	20030827	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CANON KABUSHIKI KAISHA, JAPAN OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:HOSAKA, AKIHITO; AKINO, SHOJI; OTSUKA, HIROSHI; REEL/FRAME:014433/0284; SIGNING DATES FROM 20030707 TO 20030711
US2004026326 AA	20061106	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	

Title: SEWAGE SLUDGE TREATMENT - BY SEPARATING INTO FRACTIONS WITH COARSE AND FINE SOLIDS AND STABILIZING THE LATTER BY DIGESTION

Abstract: The sludge from a sewage treatment plant is screened to remove fibres and coarse particles and the underflow is separated into two phases. One is enriched with inorg. solids. The screening operation can be saved if the sludge is separated in one stage into a first fraction with the fine solids. The latter is then subjected to stabilization.

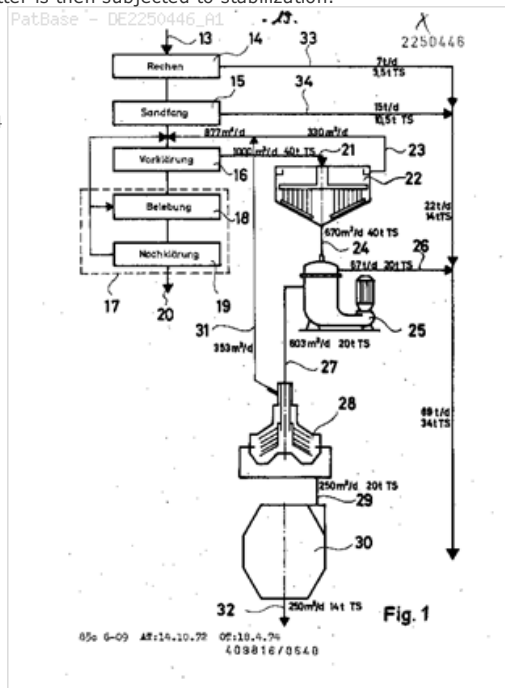
Classifications:

International (IPC 8-9): B01D21/00 B01D35/28 C02F1/38
C02F11/12 C02F11/18 C02F3/12 C02F3/30 (Advanced/Invention);
B01D21/00 B01D35/00 C02F1/38 C02F11/12 C02F11/18 C02F3/12
C02F3/30 (Core/Invention)

International (IPC 1-7): B01D21/00 B01D35/28 C02C1/06 C02C1/14
C02C1/18 C02C1/36 C02C3/00

CPC: B01D21/00 B01D35/28 C02F11/04 C02F11/127 C02F11/18
C02F1/385 C02F3/1221 C02F3/30 C02F11/12 C02F11/121

European: M02F11/04 M02F11/18



Family:

Publication number	Publication date	Application number	Application date
AU197247745 A1	19740426	AU19720047745	19721013
BE789842 A	19730201		00000000
BE789842 A1	19730201	BE19720122893	19721009
BR7207125 A0	19730920	BR19720007125	19721012
DD100233 C	19730912	DD19720166227	19721013
DE2152852 A1	19730426	DE19712152852	19711023
DE2250446 A1	19740418	DE19722250446	19721014
FR2156729 A1	19730601	FR19720036429	19721013
IT968797 A	19740320	IT19720030262	19721009
JP48072967 A2	19731002	JP19720101957	19721013
NL7213749 A	19730425	NL19720013749	19721011
SE7213271 L	19730424	SE19720013271	19721013

Priority:

DE19712152852 19711023 DE19722250446 19721014

Probable Assignee: RHEINSTAHL AG

Assignee(s): (std): RHEINSTAHL AG

Assignee(s): RHEINSTAHL AG 4300 ESSEN ; RHEINSTAHL 4300 ESSEN AG ; RHEINSTAHL A G ; RHEINSTAHL A G AM
RHEINSTAHLHAUS ESSEN ALLEMAGNE

Inventor(s): (std): ROSLER NORBERT ; RUDAT WILLI GEORG ; ROSLER N ; RUDAT W G ; ROESLER NORBERT DIPL ING ;
RUDAT W

Inventor(s): WG RUDAT ; W G RUDAT ; N ROSLER ; WILLI GEORG RUDAT ; NORBERT ROSLER

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU197247745 A1	19740426	LSPB	+	published / reissued	
BE789842 A	19730201	LSPB	+	published / reissued	
BE789842 A1	19730201	LSPB	+	published / reissued	
DD100233 C	19730912	LSGT	+	granted / extensions (spc, cpc, pte)	
DD100233 C	19901013	PEXP		Calculated Patent Term Expiry	
DE2152852 A1	19730426	LSPB	+	published / reissued	
DE2250446 A1	19740418	LSPB	+	published / reissued	
FR2156729 A1	19730601	LSPB	+	published / reissued	

FR2156729 A1	19751219	LSLE	-ST	NOTIFICATION OF LAPSE
IT968797 A	19740320	LSGT	+	granted / extensions (spc, cpc, pte)
IT968797 A	19921009	PEXP		Calculated Patent Term Expiry
NL7213749 A	19730425	LSPB	+	published / reissued

Title: POROUS HYDROPHILIC CARBON FOR WASTE WATER **PURIFICATION** - PREPD. BY IMPREGNATING WOOD STRIPS, PYROLYSING AND CRUSHING

Abstract: Porous hydrophilic carbon for bacterial bed supports in waste water **purification** are made by cutting wood into strips 50-100 cm long, a few mm wide and 0.1-0.5 mm thick. The strips are then impregnated on their faces by an aq. liquid contg. sulphuric acid (6-7 percent based on the wood), an unsaturated oil or its corresp. free acid (3-6 percent based on the wood) and 1-2 percent of a detergent emulsifier of the ABS type or an etherified polyalkylphenol. The compressed impregnated wood of weight 50-60 kgs/m³ is then pyrolysed by heating to 240 degrees centigrade in a sealed oven. The wood strips only contract longitudinally avoiding curving or flattening of the sap or resin channels. The carbon fibre is then crushed for use in water treatment. The carbon is used for treating domestic and industrial water for example from food industries, starch manufacture and abattoirs. The process has the advantage of using an **anaerobic** method with evolving harmful or malodorous gases; the normal aerobic processes have the disadvantage of producing large amounts of sludge which must be disposed of. A further advantage lies in the removal of nitrogen and phosphorus contg. material.

Classifications:

International (IPC 8-9): C01B31/08 C02F3/10 (Advanced/Invention);

C01B31/00 C02F3/10 (Core/Invention)

International (IPC 1-7): C01B31/12 C02C5/02

CPC: Y02W10/15 C02F3/10 C01B32/382

European: C01B31/08T C02F3/10

Family:

Publication number	Publication date	Application number	Application date
FR2331515 A1	19770610	FR19750035260	19751113
FR2331515 B3	19780818	FR19750035260	19751113

Priority:

FR19750035260 19751113

Probable Assignee:

SEILER RENE RODOLPHE

Assignee(s): (std):

SEILER RENE RODOLPHE

Legal status (INPADOC)

[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
FR2331515 A1	19770610	LSPB	+	published / reissued	
FR2331515 B3	19780818	LSGT	+	granted / extensions (spc, cpc, pte)	
FR2331515 B3	19790831	LSLE	-ST	NOTIFICATION OF LAPSE	
FR2331515 B3	19811113	PEXP		Calculated Patent Term Expiry	

Abstract: Source: DE9209989U1 [DE] (Claim 1) 1. Vorrichtung zur biologischen Reinigung von Wasser, vorzugsweise vorgeklaertem Abwasser, in der das aufzubereitende Wasser mit reinem Sauerstoff und/oder Luft in einem Tropfkörper in Kontakt gebracht wird und anschliessend zur Nachklärung bzw. Feinreinigung durch einen Filter gefuehrt wird, wobei die Sauerstoffdosierung ein echt geloestes Sauerstoffdepot fuer die Filtration sicherstellt, dadurch gekennzeichnet, dass weitere Behandlungseinrichtungen wie eine Denitrifikationseinrichtung mit Reaktionsraum vorgesehen ist, in dem anoxische Verhaeltnisse herrschen, die zu einer Denitrifikation fuehren.

Machine translation: (Claim 1) 1 Apparatus for biological **purification** of water, preferably vorgeklaertem wastewater, is in has put the water to be treated with pure oxygen and / or air in a Tropfkörper in contact and then to Nachklärung or fine cleaning is run through a filter, where the oxygen dosage a fully diluted oxygen depot for ensuring the filtration, characterized in that additional treatment facilities such as a Denitrifikationseinrichtung is provided with a reaction chamber, in which anoxic conditions prevail that lead to denitrification.

Classifications:

International (IPC 8-9): C02F3/04 C02F3/10 C02F3/26

C02F3/28 (Advanced/Invention);

C02F3/04 C02F3/10 C02F3/26 C02F3/28 (Core/Invention)

International (IPC 1-7): C02F1/58 C02F1/66 C02F1/70 C02F1/78

C02F3/04 C02F3/26 C02F3/30

CPC: C02F3/10 C02F3/04 C02F3/26 C02F3/2806 Y02W10/15

European: C02F3/04 C02F3/10 C02F3/26 C02F3/28C

PatBase - DE9209989_U1

Fig. 1

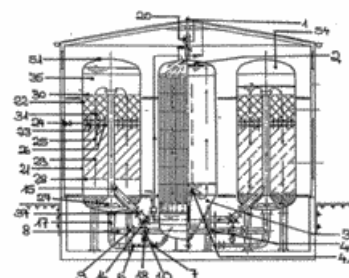
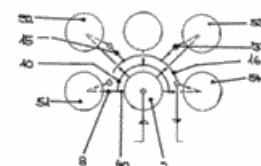


Fig. 2



Family:

Publication number	Publication date	Application number	Application date
DE9209989 U1	19921119	DE19920009989U	19920724

Priority:

DE19920009989U 19920724

Probable Assignee: IWTS CONSULTING ENGINEERS GMBH 6200 WIESBADEN DE

Assignee(s): IWTS CONSULTING ENGINEERS GMBH 6200 WIESBADEN DE

Legal status (INPADOC)

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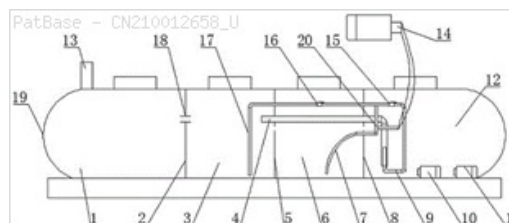
Patent	Date recorded	Event group	Code	Event	Details
DE9209989 U1	19921119	LSGT	+	granted / extensions (spc, cpc, pte)	
DE9209989 U1	20020724	PEXP		Calculated Patent Term Expiry	

Title: One kind of rural waste treatment equipment integration (Machine translation)

Abstract: Source: CN210012658U **Machine translation:** The utility model discloses a rural waste treatment equipment integration, including a horizontally disposed within the barrel, the barrel body successively laid interval with a first separator, the second separator and the third separator, said first separator, the second separator and the third separator so that the barrel cavity successively divided in the septic tank, **anaerobic** tank, aerobic pool, clear pool, the pool is provided with a jet means, means for the water tanks of sludge driven back to the **anaerobic** tank, the utility model does not require frequent pumping manure, and can handle a variety of domestic sewage and the ability to achieve the air flow pushes liquid flow, so that the water tanks precipitation sludge to the **anaerobic** pool timely reflux again within the sewage **purification**, can effectively remove the organic matter and degradation of ammonia nitrogen value, improve the **purification** effect, making the water more clean water tanks.

Classifications:

International (IPC 8-9): C02F101/16 C02F101/30 C02F11/04
C02F3/30 (Advanced/Invention);
C02F101/16 C02F101/30 (Advanced/Non-invention)



Family:

Publication number	Publication date	Application number	Application date
CN210012658 U	20200204	CN201922334869U	20191224

Priority:

CN201922334869U 20191224

Probable Assignee: ENVIRONMENTAL PROTECTION TECHNOLOGY CO LTD SHANDONG GOOD STATE

Assignee(s): ENVIRONMENTAL PROTECTION TECHNOLOGY CO LTD SHANDONG GOOD STATE

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN210012658 U	20200204	LSGT	+	granted / extensions (spc, cpc, pte)	
CN210012658 U	20200204	LSGT	+GR01	PATENT GRANT	
CN210012658 U	20291224	PEXP		Calculated Patent Term Expiry	

Title: PROCESS FOR THE BIOLOGICAL **PURIFICATION** OF WASTE WATERS FROM YEAST AND SUGAR FACTORIES, DISTILLERIES AND OTHER FACTORIES

Abstract: 284,267. Aktieselskabet Dansk Gaerings Industri, (Assignees of Lesienicka Fabryka Drozdzy prasowanych i spirytusu Spolka Akcyjna (Lesienitzer Spiritus und Presshefefabriken Akt.-Ges.)). Jan. 26, 1927, [Convention date]. Bacteriological processes.-The waste waters from distilleries, and from yeast, sugar, and other factories utilizing molasses are purified by the action of aerobic or **anaerobic** betaine-destroying micro-organisms, a "starting-stock " of a pure culture of such organisms being first prepared, for example by inoculating a concentrated solution of betaine with putrescent beetroots or decaying molasses. By means of this culture the betaine and its derivatives and transformation products are decomposed into carbonic acid, ammonia, and formic acid. In a second stage the vegetable acids, particularly the formic acid, are removed by bacterial decomposition. The waste water containing humus may also be treated with suitable organisms, which may be used in the first or second stage of the process. Albuminous substances may be removed by albumen-decomposing bacilli, such as putrifucus, mesentericus, or vulgatus, or by filtering, or the yeast cells are removed mechanically and destroyed by plasmolysis, or by heating, and finally treated with albumen-decomposing microorganisms. By the use of pure cultures, and by carrying out these processes under controlled conditions, the production of hydrogen sulphide is prevented. The Figure shows diagrammatically a plan of a plant for carrying out the process. The filtered and c. waste water is neutralized by milk of lime and run into a closed decomposing basin I; thence it passes to a small shallow clarifying-basin I, the bottom of which forms a flat funnel for the settling bacteria. Thence the waste water passes to a second decomposing tank II with an adjoining settling-basin II. A stock of pure betaine bacteria is propagated in a vessel IV and run into the basin I say once a week, and a culture of bacterium formicum Ometianski is propagated in the receptacle IV and run into the basin II to decompose the formic acid and other humus products. A short stimulation by aeration is desirable when a fresh culture is added; phosphates may be added to accelerate the action. A short supplemental treatment of the waste water in a fish-pool may follow. Humus-destroying bacteria may be placed in either basin I, II. Specification 307,587 is referred to.

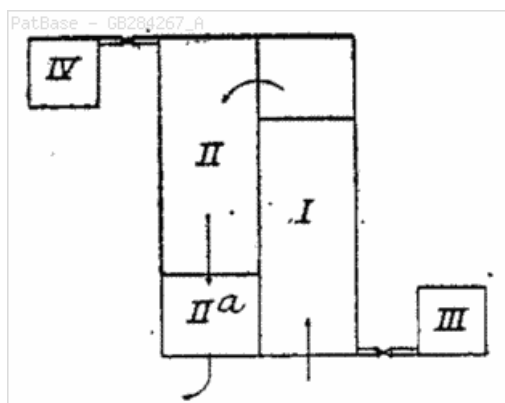
Classifications:

International (IPC 8-9): C02F3/02 C02F3/34 (Advanced/Invention); C02F3/02 C02F3/34 (Core/Invention)

International (IPC 1-7): C02C5/10

CPC: C02F3/34 C02F3/02 Y02W10/15

European: C02F3/02 C02F3/34



Family:

Publication number	Publication date	Application number	Application date
GB284267 A	19290314	GB19280002472	19280125

Priority:

19270126

Probable Assignee: DANSK GAERINGS INDUSTRI AS

Assignee(s): (std): DANSK GAERINGS INDUSTRI AS

Assignee(s): AKTIESELSKABET DANSK GAERINGS INDUSTRI ; DANSK GAERINGS IND AS

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
GB284267 A	19290314	LSGT	+	granted / extensions (spc, cpc, pte)	
GB284267 A	19480125	PEXP		Calculated Patent Term Expiry	

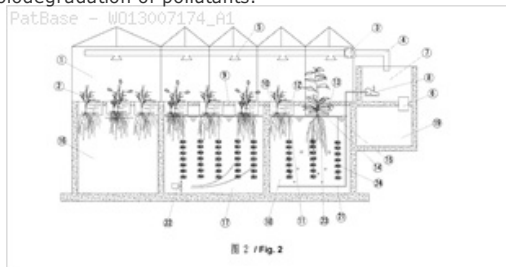
Title: THREE-DIMENSIONAL ECOLOGICAL DEODORANT DEPHOSPHORIZATION DENITRIFICATION METHOD AND DEVICE, AND APPLICATION THEREOF

Abstract: A three-dimensional ecological deodorant dephosphorization denitrification method, wherein in a sewage treatment system, groups of plants (2) are suspended in a reaction tank, branches and leaves of the aquatic plants form an isolation **purification** layer capable of adsorbing odor and preventing outward diffusion of odor, and at the same time, roots and stems of the aquatic plants in the sewage serve as an ecological filler and adsorb and degrade microorganisms and adsorb odor, thereby achieving the purpose of deodorant dephosphorization denitrification of wastewater. A deodorant dephosphorization denitrification apparatus designed according to the method and a use thereof in an SBR process, an A/O process, an A2/O process, an AB process, an oxidation ditch process, an MBR process, and a MUCT process. The three-dimensional ecological deodorant dephosphorization denitrification method is an ecological low-cost treatment method that uses an original sewage treatment system as the main measure and plants for purifying organics as an aid measure. The three-dimensional ecological deodorant dephosphorization denitrification method can be used to upgrade sewage treatment plants of various processes, and can achieve the greatest degree of biodegradation of pollutants.

Classifications:

International (IPC 8-9): C02F3/00 C02F3/10 C02F3/12 C02F3/30 C02F3/32 (Advanced/Invention)

CPC: C02F2303/02 C02F3/327 Y02W10/18



Family:

Publication number	Publication date	Application number	Application date
CN102863081 A	20130109	CN201110191041	20110708
CN102863081 B	20141029	CN201110191041	20110708
WO13007174 A1	20130117	WO2012CN78321	20120707

Priority:

CN201110191041 20110708

Probable Assignee: SHENZHEN DIDA WATER ENGINEERING LTD CO

Assignee(s): (std): LI HONGHUI ; LIU JUAN ; SHENZHEN DIDA WATER ENGINEERING LTD CO ; SHENZHEN DIDA WATER ENGINEERING LTD COMPANY

Assignee(s): SHENZHEN DIDA WATER ENGINEERING CO LTD ; SHENZHEN DIDA WATER ENGINEERING LIMITED COMPANY

Inventor(s): (std): LI HONGHUI ; LIU JUAN

Agent(s): SHENZHEN HEDAOLYINGLIAN PATENT FIRM (GENERAL PARTNERSHIP)

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 QA RO RS RU RW 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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN102863081 A	20130109	LSPB	+	published / reissued	
CN102863081 A	20130109	LSPB	+C06	PUBLICATION	
CN102863081 A	20130109	LSPB	PB01	公开 (The publication of application)	TEXT : 公开 (DISCLOSURE)
CN102863081 A	20140903	LSAS	ASS	SUCCESSION OR ASSIGNMENT OF PATENT RIGHT	PARTYTYPE : OWNER OWNER : PENG YUNLONG OLDPARTY : FORMER OWNER: LI HONGHUI EFFECTIVE DATE : 20140814
CN102863081 A	20140903	LSAS	C41	TRANSFER OF PATENT APPLICATION OR PATENT RIGHT OR UTILITY MODEL	
CN102863081 A	20140903	LSRE	C53	CORRECTION OF PATENT FOR INVENTION OR PATENT APPLICATION	
CN102863081 A	20140903	LSRE	COR	CHANGE OF BIBLIOGRAPHIC DATA	TEXT : CORRECT: INVENTOR; FROM: LI HONGHUI TO: PENG YUNLONG LI HONGHUI

CN102863081 A	20140903	LSRE	COR	CHANGE OF BIBLIOGRAPHIC DATA	TEXT : CORRECT: ADDRESS; FROM: 422800 SHAOYANG, HUNAN PROVINCE TO: 518000 SHENZHEN, GUANGDONG PROVINCE
CN102863081 A	20140903	LSAS	TA01	专利申请权的转移 (Transfer of patent application right)	TEXT : 专利申请权、专利权的转移 (TRANSFER OF PATENT APPLICATION OR PATENT RIGHT) APPLICANT AFTER CHANGE : 彭云龙 (PENG YUNLONG) APPLICANT BEFORE CHANGE : 李鸿惠 (LEE HONG FU HUI) EFFECTIVE DATE : 20140814
CN102863081 A	20141022	LSAS	ASS	SUCCESSION OR ASSIGNMENT OF PATENT RIGHT	PARTYTYPE : OWNER OWNER : SHENZHEN DIDA WATER ENGINEERING CO., LTD. OLDPARTY : FORMER OWNER: PENG YUNLONG EFFECTIVE DATE : 20140923
CN102863081 A	20141022	LSAS	C41	TRANSFER OF PATENT APPLICATION OR PATENT RIGHT OR UTILITY MODEL	
CN102863081 A	20141022	LSAS	TA01	专利申请权的转移 (Transfer of patent application right)	TEXT : 专利申请权、专利权的转移 (TRANSFER OF PATENT APPLICATION OR PATENT RIGHT) APPLICANT AFTER CHANGE : 深圳地大水务工程有限公司 (SHENZHEN IS LARGE TRAFFIC ENGINEERING CO LTD) APPLICANT BEFORE CHANGE : 彭云龙 (PENG YUNLONG) EFFECTIVE DATE : 20140923
CN102863081 B	20141029	LSGT	+	granted / extensions (spc, cpc, pte)	
CN102863081 B	20141029	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN102863081 B	20141029	LSGT	+GR01	授权 (The grant of patent right)	TEXT : 授权 (AUTHORIZATION)
CN102863081 B	20180831	LSRV	-IP01	PARTIAL INVALIDATION OF PATENT RIGHT	
CN102863081 B	20180831	LSRV	-IP01	专利权部分无效 (Partial invalidation of patent right)	TEXT : 专利权的无效宣告 (ANY INVALIDATION OF THE PATENT RIGHT) DECISION NUMBER : 34178 DECISION DATE : 20171222 COMMITTEE NUMBER : 4W105918 ANNOUNCEMENT : 宣告 201110191041.X号发明的权利要求4无效, 在权利要求1-3、5 -12的基础上继续维持该专利有效。(201110191041.X NO. DECLARED INVENTION OF CLAIM 4 IS INVALID, IN CLAIMS 1-3 AND 5-12 ON THE BASIS OF THIS PATENT CONTINUES TO BE MAINTAINED VALID.)
CN102863081 B	20180925	LSRV	-IP01	PARTIAL INVALIDATION OF PATENT RIGHT	
CN102863081 B	20180925	LSRV	-IP01	专利权部分无效 (Partial invalidation of patent right)	TEXT : 专利权的无效宣告 (ANY INVALIDATION OF THE PATENT RIGHT) DECISION NUMBER : 34178 DECISION DATE : 20171222 COMMITTEE NUMBER : 4W106107 ANNOUNCEMENT : 宣告 201110191041.X号发明的权利要求4无效, 在权利要求1-3、5 -12的基础上继续维持该专利有效。(201110191041.X NO. DECLARED INVENTION OF CLAIM 4 IS INVALID, IN CLAIMS 1-3 AND 5-12 ON THE BASIS OF THIS PATENT CONTINUES TO BE MAINTAINED VALID.)
CN102863081 B	20190924	LSAS	CP03	专利权人的姓名或者名称、地址的变更 (Change of the name or address of a patentee)	TEXT : 专利权人的姓名或者名称、地址的变更 (THE NAME OR ADDRESS OF A PATENTEE) PATENTEE AFTER CHANGE : 深圳地大环境科技有限公司 (SHENZHEN IS LARGE ENVIRONMENTAL TECHNOLOGY CO., LTD.) PATENTEE BEFORE CHANGE : 深圳地大水务工程有限公司 (SHENZHEN IS LARGE TRAFFIC ENGINEERING CO LTD)

CN102863081 B	20190924	LSAS	CP03	CHANGE OF NAME, TITLE OR ADDRESS	
CN102863081 B	20310708	PEXP		Calculated Patent Term Expiry	
WO13007174 A1	20130117	LSPB	+	published / reissued	
WO13007174 A1	20140108	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO13007174 A1	20150311	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 12810715 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :

Title: COMBINED CONSTRUCTED WETLAND SYSTEM FOR EFFICIENTLY TREATING AMMONIA-NITROGEN WASTEWATER

Abstract: The invention relates to a combined constructed wetland system for efficiently treating ammonia-nitrogen wastewater. The combined artificial wetland system comprises a flocculent settling tank, an aerobic surface flow constructed wetland mechanism, a resin oxygen removal device and an **anaerobic** upstream subsurface flow constructed wetland mechanism which are sequentially arranged along a water flow direction. The aerobic surface flow constructed wetland mechanism comprises a gravel layer, an aeration device, a biochar-resin layer and wetland plants, wherein the gravel layer is laid at the bottom of the aerobic surface flow constructed wetland mechanism, the aeration device is arranged at the bottom of the aerobic surface flow constructed wetland mechanism, the biochar-resin layer is laid on the gravel layer, and the wetland plants are planted in the gravel layer and the biochar-resin layer. The **anaerobic** upstream subsurface flow constructed wetland mechanism comprises a water distribution layer, a denitrification layer and a planting layer which are sequentially arranged from top to bottom, and aquatic plants are planted in the planting layer. According to the system, the removing rate of ammonia and nitrogen in wastewater is greatly increased under the combined action of the aerobic surface flow constructed wetland mechanism and the **anaerobic** upstream subsurface flow constructed wetland mechanism, and the system has the advantages of simple structure, good water **purification** effect, convenience and rapidness in operation and management and the like.

Classifications:

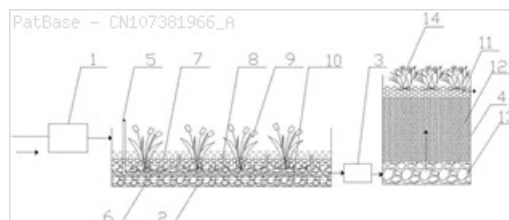
International (IPC 8-9): C02F101/16 C02F3/32

C02F9/14 (Advanced/Invention);

C02F101/16 (Advanced/Non-invention)

CPC: C02F9/00 C02F1/20 C02F1/5236 C02F1/56 C02F3/302

C02F2101/16 C02F3/32 Y02W10/18



Family:

Publication number	Publication date	Application number	Application date
■ CN107381966 A	20171124	CN201710784913	20170904

Priority:

CN201710784913 20170904

Probable Assignee: BEIJING ORIENT LANDSCAPE ENV CO LTD

Assignee(s): (std): BEIJING ORIENT LANDSCAPE ENV CO LTD

Assignee(s): BEIJING ORIENT LANDSCAPE ENVIRONMENT CO ; BEIJING ORIENTAL GARDEN ENVIRONMENTAL LTD

Inventor(s): (std): CUI CHENCHEN ; FAN BEILI ; XIA BO ; ZHANG KAI ; ZHAO XIAOHONG

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN107381966 A	20171124	LSPB	+	published / reissued	
CN107381966 A	20171124	LSPB	PB01	PUBLICATION	

Title: PROCESS FOR OBTAINING DINITROGEN MONOXIDE (N₂O)

Abstract: In a method for obtaining dinitrogen monoxide by microbiological or enzymatic processes from nitrogen-containing substances, the microorganisms, bacteria, archaea, eukaryotes, fungi, parasites, phages, cells, cell fractions or membrane fractions, and/or enzymes, and/or a combination thereof to be used in this context are selected, or manipulated or partly or entirely reversibly and/or irreversibly inhibited by suitable actions, or the corresponding microbiological or enzymatic processes are controlled, for example, by way of suitable process conditions, so that, in part or entirely, dinitrogen monoxide (N₂O) is formed from the nitrogen-containing compounds of the nitrogen-containing substances.

Classifications:

International (IPC 8-9): C01B21/22 C02F3/00 C02F3/30 C02F3/34 C12P3/00 C12P39/00 F23L7/00 (Advanced/Invention); C12P39/00 (Advanced/Non-invention)

CPC: C12P3/00 C02F1/705 C02F3/005 C02F3/006 C02F3/302 C02F3/34 C02F3/342 C02F2101/16 C02F2101/163 C02F2101/166 C02F2103/20 C02F2209/001 C02F2209/003 C02F2209/02 C02F2209/06 C02F2209/22 C02F2209/34 C12P39/00 F23G5/46 F23G7/10 F23G2206/20 F23J2215/101 Y02E20/12 Y02W10/12

European: C02F3/00R C02F3/30D C02F3/34 C02F3/34B C12P3/00 C12P39/00 F23G5/46 F23G7/10 M02F1/70C M02F101/16 M02F101/16B M02F101/16D M02F103/20 M02F209/00B M02F209/00D M02F209/02 M02F209/06 M02F209/22 M02F209/34 M02F3/00E R23G206/20 R23J215/101

US: 435/168

Family:

Publication number	Publication date	Application number	Application date
CN102985549 A	20130320	CN201180033448	20110511
DE102010031075 A1	20120112	DE201010031075	20100707
EP2591118 A2	20130515	EP20110719001	20110511
IN00145DN2013 A	20160129	IN2013DN00145	20130105
US2013171711 AA	20130704	US20110807968	20110511
WO12004026 A2	20120112	WO2011EP57571	20110511
WO12004026 A3	20120419	WO2011EP57571	20110511

Priority:

DE201010031075 20100707 WO2011EP57571 20110511

Probable Assignee: ROBERT BOSCH GMBH

Assignee(s): (std): BOSCH GMBH ROBERT ; FINKE THOMAS ; LINGENFELSER DOMINIC ; MATTERN ANDREAS

Assignee(s): ROBERT BOSCH GMBH

Inventor(s): (std): FINKE THOMAS ; LINGENFELSER DOMINIC ; MATTERN ANDREAS

Agent(s): ROBERT BOSCH GMBH

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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN102985549 A	20130320	LSPB	+	published / reissued	
CN102985549 A	20130320	LSPB	+C06	PUBLICATION	
CN102985549 A	20160302	LSRV	-C12	REJECTION OF A PATENT APPLICATION AFTER ITS PUBLICATION	
DE102010031075 A1	20120112	LSPB	+	published / reissued	
DE102010031075 A1	20170201	LSDW	-R119	APPLICATION DEEMED WITHDRAWN, OR IP RIGHT LAPSED, DUE TO NON-PAYMENT OF RENEWAL FEE	
EP2591118 A2	20130515	LSPB	+	published / reissued	
EP2591118 A2	20130515	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20130207
EP2591118 A2	20160420	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20160317
EP2591118 A2	20160928	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	EFFECTIVE DATE : 20160429
IN00145DN2013 A	20160129	LSPB	+	published / reissued	

US2013171711 AA	20130704	LSPB	+	published / reissued	
US2013171711 AA	20130319	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ROBERT BOSCH GMBH, GERMANY OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:FINKE, THOMAS; MATTERN, ANDREAS; LINGENFELSER, DOMINIC; SIGNING DATES FROM 20130118 TO 20130201; REEL/FRAME:030042/0789
US2013171711 AA	20150806	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	
WO12004026 A2	20120112	LSPB	+	published / reissued	
WO12004026 A2	20110511	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 201180033448.8 COUNTRY OF REF DOCUMENT : CN
WO12004026 A3	20120529	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2011719001 COUNTRY OF REF DOCUMENT : EP
WO12004026 A3	20130320	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 13807968 COUNTRY OF REF DOCUMENT : US

Title: PROCESS AND APPARATUS FOR THE BIOLOGICAL **PURIFICATION** OF WASTE WATER

Abstract: A process and an apparatus are described for the biological **purification** of phosphate-containing waste water, in which the waste water is aerobically treated in a reaction zone in the presence of an activated sludge at least in part fixed to a support material and then an essentially phosphate-free waste water stream is withdrawn. In order to achieve, by simple and economic means, high **purification** values, especially with regard to the phosphate removal, it is proposed to treat the waste water in at least two reaction zones and to carry out the treatment in a time cycle under aerobic, **anaerobic** and, possibly, anoxic conditions. During this, the biomass fixed to the support material remains in the particular reaction zone and is subjected, in a specific time cycle adapted to the particular conditions of the waste water, to aerobic and **anaerobic** and, if nitrification or denitrification is carried out, to anoxic conditions.

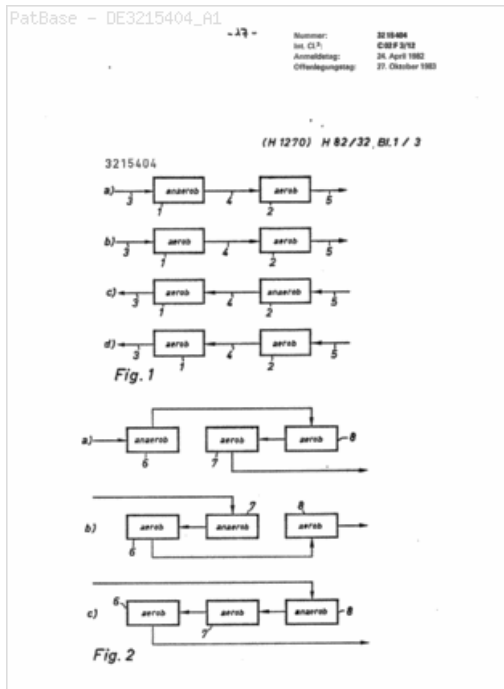
Classifications:

International (IPC 8-9): C02F3/06 C02F3/12 C02F3/28 C02F3/30 (Advanced/Invention);
C02F3/06 C02F3/12 C02F3/28 C02F3/30 (Core/Invention)

International (IPC 1-7): C02F3/12

CPC: C02F3/1215 C02F3/06 C02F3/1263 C02F3/2806 C02F3/308 Y02W10/15

European: C02F3/06 C02F3/12A4 C02F3/12N8 C02F3/28C C02F3/30F



Family:

Publication number	Publication date	Application number	Application date
DE3215404 A1	19831027	DE19823215404	19820424

Priority:

DE19823215404 19820424

Probable Assignee: LINDE AG

Assignee(s): (std): LINDE AG

Inventor(s): (std): FRYDMANN ALLEN ; FUCHS UWE ; REIMANN HANS DR

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
DE3215404 A1	19831027	LSPB	+	published / reissued	
DE3215404 A1	19880414	LSLE	-8139	DISPOSAL/NON-PAYMENT OF THE ANNUAL FEE	

Title: PROCESS FOR TREATING EFFLUENTS LOADED WITH AMMONIACAL NITROGEN, AND REACTOR FOR THE IMPLEMENTATION OF THE PROCESS

Abstract: Process for treating effluents loaded with ammoniacal nitrogen in a single-chamber reactor (R), to remove the ammoniacal nitrogen therefrom, according to which: provided in the reactor is an anode (A) on which a biofilm essentially containing autotrophic bacteria is formed, and a cathode (C), then completely **anaerobic** conditions are established in the reactor; a volume of effluent to be treated is introduced into the reactor; a potential difference is applied and maintained between the anode and the cathode throughout the duration of the treatment for eliminating the ammoniacal nitrogen.

Classifications:

International (IPC 8-9): C02F1/46 C02F3/00 C02F3/28

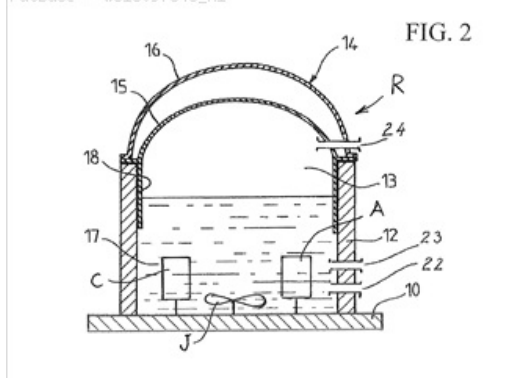
C02F3/30 (Advanced/Invention);

C02F101/16 (Advanced/Non-invention)

CPC: C02F3/2806 C02F3/005 C02F3/282 C02F3/301 C02F3/302

C02F2101/16

PatBase - WO15097648_R1



Family:

Publication number	Publication date	Application number	Application date
FR3015464 A1	20150626	FR20130063410	20131223
FR3015464 B1	20170818	FR20130063410	20131223
WO15097648 A1	20150702	WO20141B67232	20141222

Priority:

FR20130063410 20131223

Probable Assignee: DEGREMONT

Assignee(s): (std): AGRONOMIQUE INST NAT RECH ; DEGREMONT ; INST NAT DE LA RECH AGRONOMIQUE INRA ; SUEZ ENVIRONNEMENT

Assignee(s): NATIONAL DE LA RECHERCHE AGRONOMIQUE INRA INST

Inventor(s): (std): RENVOISE LAURE ; PEREGRINA CARLOS ; BERNET NICOLAS ; TRABLY ERIC

Inventor(s): LAURE RENVOISE ; CARLOS PEREGRINA ; ERIC TRABLY ; NICOLAS BERNET

Agent(s): CABINET ARMENGAUD AINE; IPAZ; MOUGET GONIOT CLAIRE 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 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 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 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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
FR3015464 A1	20150626	LSPB	+	published / reissued	
FR3015464 A1	20151228	LSFE	+PLFP	FEE PAYMENT	YEAR OF FEE PAYMENT : 3
FR3015464 A1	20161229	LSFE	+PLFP	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
FR3015464 B1	20170818	LSGT	+	granted / extensions (spc, cpc, pte)	
FR3015464 B1	20171229	LSFE	+PLFP	FEE PAYMENT	YEAR OF FEE PAYMENT : 5
FR3015464 B1	20181221	LSFE	PLFP	Fee Payment (FEE PAYMENT)	PAYMENT DATE : 20181221 YEAR OF FEE PAYMENT : 6
FR3015464 B1	20191220	LSFE	+PLFP	FEE PAYMENT	YEAR OF FEE PAYMENT : 7
FR3015464 B1	20331223	PEXP		Calculated Patent Term Expiry	
WO15097648 A1	20150702	LSPB	+	published / reissued	
WO15097648 A1	20160623	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE

WO15097648 A1	20170125	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 14833282 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :
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Title: PACKAGED SANITARY INSTALLATION SEWERAGE **PURIFICATION** TREATMENT METHOD

Abstract: A packaged sanitary installation sewerage **purification** treatment method uses a packaged sanitary installation sewerage **purification** treatment device to carry out sewerage **purification** treatment for a packaged sanitary installation. The packaged sanitary installation sewerage **purification** treatment device comprises at least an aerobic micro-organism decomposition tank containing an aerobic micro-organism, an **anaerobic** micro-organism decomposition tank containing an **anaerobic** micro-organism, a deodorization/disinfection tank effecting deodorization and disinfection, a facultative micro-organism decomposition tank containing a facultative micro-organism, and a purified water tank. Further, by means of the decomposition of sewerage carried out by the internal aerobic micro-organism, the **anaerobic** micro-organism, and the facultative micro-organism and the effected deodorization and disinfection, the sewerage is converted into regenerated purified water, which is then stored in the purified water tank. Further, the regenerated purified water stored in the purified water tank is recycled to serve as water for flushing of dung from the packaged sanitary installation and can be subject to further **purification** for discharge to the surroundings or for other uses.

Classifications:

International (IPC 8-9): E03D7/00 (Advanced/Invention);
C02F3/34 (Advanced/Non-invention)

Family:

Publication number	Publication date	Application number	Application date
 TW200704853 A	20070201	TW20050125746	20050729

Priority:

TW20050125746 20050729

Probable Assignee: XIE JIA QING
Assignee(s): (std): XIE JIA QING
Assignee(s): SHIE JIA CHING
Inventor(s): (std): XIE JIA QING
Inventor(s): SHIE JIA CHING

Legal status (INPADOC)

[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
TW200704853 A	20070201	LSPB	+	published / reissued	

Title: CIRCUIT **PURIFICATION** FOR THE PAPERMAKING INDUSTRY

Abstract: A method for the treatment of process water or effluent from a papermaking process, in which this water is subjected to at least one **anaerobic purification** step, an aeration step and a solids separation step and the water is then returned to the production process, and at least two treated water streams of different quality, which originate from a different combination of **purification** steps, are returned to different points in the production process.

Classifications:

International (IPC 8-9): C02F3/30 C02F9/00

D21C11/00 (Advanced/Invention);

C02F1/00 C02F1/24 C02F1/44 C02F103/28 C02F3/02 C02F3/28

D21C11/00 (Advanced/Non-invention);

C02F3/30 C02F9/00 D21C11/00 (Core/Invention);

C02F1/00 C02F1/24 C02F1/44 C02F3/02 C02F3/28 (Core/Non-invention)

International (IPC 1-7): C02F103/28 C02F3/30 C02F9/00 D21C11/00

CPC: Y10S210/928 D21C11/0021 C02F1/001 C02F1/24 C02F1/444

C02F3/02 C02F3/286 C02F9/00 C02F2001/007 C02F2103/28

Y02W10/15

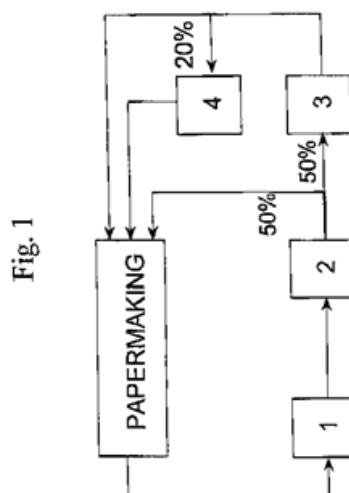
European: C02F9/00 C02F9/00C D21C11/00F M02F1/00D

M02F1/00S M02F1/24 M02F1/44D M02F103/28 M02F3/02 M02F3/28S

US: 162/29 210/605 210/607 210/612 210/622 210/650 210/928

PatBase - US6372139_BA

U.S. Patent Apr. 16, 2002 Sheet 1 of 2 US 6,372,139 B1



Family:

Publication number	Publication date	Application number	Application date
DE60042724 D1	20090924	DE20006042724	20001106
EP1097908 A1	20010509	EP20000203842	20001106
EP1097908 B1	20090812	EP20000203842	20001106
ES2331049 T3	20091221	ES20000203842T	20001106
NL1013491 C2	20010507	NL19991013491	19991104
US6372139 BA	20020416	US20000705889	20001106

Priority:

NL19991013491 19991104

Probable Assignee: PAQUES IP BV

Assignee(s): (std): PACQUES BV ; PAQUES WATER SYSTEMS B V ; PAQUES WATER SYSTEMS BV

Assignee(s): PAQUES B V ; PAQUES BV ; PAQUES IP BV ; PAQUES T DE BOERSTRAAT BV ; PAQUES WATER SYSTEMS PO BOX BV

Inventor(s): (std): HABETS LEONARD HUBERTUS ALPHON ; MULDER RONALD ; HABETS LEONARD HUBERTUS ALPHONSUS

Inventor(s): RONALD MULDER ; LEONARD HUBERTUS ALPHONSUS HABETS

Agent(s): VAN WESTENBRUGGE ANDRIES; YOUNG AND THOMPSON

Designated states: DE ES FR GB

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
DE60042724 D1	20100902	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DE60042724 D1	20120731	LSAS	R081	CHANGE OF APPLICANT/PATENTEE	PARTYTYPE : OWNER OWNER : PAQUES I.P. B.V., BALK, NL OLDPARTY : PAQUES B.V., BALK, NL
DE60042724 D1	20120920	LSAS	R081	CHANGE OF APPLICANT/PATENTEE	PARTYTYPE : OWNER OWNER : PAQUES I.P. B.V., NL REF DOCUMENT NUMBER : 1097908 COUNTRY OF REF DOCUMENT : EP OLDPARTY : FORMER OWNER: PAQUES B.V., BALK, NL

EFFECTIVE DATE : 20120731					
EP1097908 A1	20010509	LSPB	+	published / reissued	
EP1097908 A1	20020130	LSFE	+AKX	DESIGNATION FEES PAID	TEXT : AT BE CH CY LI
EP1097908 A1	20020306	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20011108
EP1097908 A1	20040428	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20040316
EP1097908 A1	20050420	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	PARTYTYPE : OWNER OWNER : PAQUES B.V.
EP1097908 A1	20061018	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20040316
EP1097908 B1	20090812	LSGT	+	granted / extensions (spc, cpc, pte)	
EP1097908 B1	20090812	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : FG4D
EP1097908 B1	20091221	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : ES REF LEGAL EVENT CODE : FG2A REF DOCUMENT NUMBER : 2331049 COUNTRY OF REF DOCUMENT : ES KIND CODE OF REF DOCUMENT : T3 DESIGNATED STATE(S) :
EP1097908 B1	20100721	LSGT	+26N	NO OPPOSITION FILED	EFFECTIVE DATE : 20100517
EP1097908 B1	20120717	LSAS	REG	REFERENCE TO A NATIONAL CODE	PARTYTYPE : OWNER REF COUNTRY CODE : ES OWNER : PAQUES I.P. B.V. REF LEGAL EVENT CODE : PC2A EFFECTIVE DATE : 20120705
EP1097908 B1	20120920	LSAS	REG	REFERENCE TO A NATIONAL CODE	PARTYTYPE : OWNER REF COUNTRY CODE : DE OWNER : PAQUES I.P. B.V., NL REF LEGAL EVENT CODE : R081 REF DOCUMENT NUMBER : 60042724 COUNTRY OF REF DOCUMENT : DE OLDPARTY : FORMER OWNER: PAQUES B.V., BALK, NL EFFECTIVE DATE : 20120731
EP1097908 B1	20121228	LSAS	REG	REFERENCE TO A NATIONAL CODE	PARTYTYPE : OWNER REF COUNTRY CODE : FR OWNER : PAQUES I.P. B.V., NL REF LEGAL EVENT CODE : TP EFFECTIVE DATE : 20121123
EP1097908 B1	20130228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20121130 YEAR OF FEE PAYMENT : 13
EP1097908 B1	20130228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES PAYMENT DATE : 20121217 YEAR OF FEE PAYMENT : 13
EP1097908 B1	20130329	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20121218 YEAR OF FEE PAYMENT : 13
EP1097908 B1	20130430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20130131 YEAR OF FEE PAYMENT : 13
EP1097908 B1	20140723	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	REF COUNTRY CODE : EP EFFECTIVE DATE : 20131106
EP1097908 B1	20140822	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : ST EFFECTIVE DATE : 20140731
EP1097908 B1	20140829	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO	COUNTRY OF REF DOCUMENT : DE NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20140603

EPO]					
EP1097908 B1	20140904	LSDW	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R119 REF DOCUMENT NUMBER : 60042724 COUNTRY OF REF DOCUMENT : DE EFFECTIVE DATE : 20140603
EP1097908 B1	20141128	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20131106
EP1097908 B1	20141128	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20131202
EP1097908 B1	20150327	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : ES REF LEGAL EVENT CODE : FD2A EFFECTIVE DATE : 20150327
EP1097908 B1	20150430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20131107
EP1097908 B1	20201106	PEXP		Calculated Patent Term Expiry	
ES2331049 T3	20091221	LSGT	+	granted / extensions (spc, cpc, pte)	
ES2331049 T3	20201106	PEXP		Calculated Patent Term Expiry	
NL1013491 C2	20010507	LSGT	+	granted / extensions (spc, cpc, pte)	
NL1013491 C2	20010702	LSSES	+PD2B	A SEARCH REPORT HAS BEEN DRAWN UP	
NL1013491 C2	20050502	LSAS	SD	ASSIGNMENTS OF PATENTS	PARTYTYPE : OWNER OWNER : PAQUES B.V.
NL1013491 C2	20120613	LSAS	SD	ASSIGNMENTS OF PATENTS	EFFECTIVE DATE : 20120608
NL1013491 C2	20140618	LSLE	-V1	LAPSED BECAUSE OF NON-PAYMENT OF THE ANNUAL FEE	EFFECTIVE DATE : 20140601
NL1013491 C2	20191104	PEXP		Calculated Patent Term Expiry	
US6372139 BA	20020416	LSGT	+	granted / extensions (spc, cpc, pte)	
US6372139 BA	20001106	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : PAQUES WATER SYSTEMS B.V., NETHERLANDS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:HABETS, LEONARD HUBERTUS ALPHONSUS; MULDER, RONALD; REEL/FRAME:011263/0508 EFFECTIVE DATE : 20001018
US6372139 BA	20050322	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : PAQUES B.V., NETHERLANDS OLDPARTY : MERGER; ASSIGNOR:PAQUES WATER SYSTEMS B.V.; REEL/FRAME:015942/0549 EFFECTIVE DATE : 20040923
US6372139 BA	20050923	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US6372139 BA	20090928	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US6372139 BA	20120606	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : PAQUES I.P. B.V., NETHERLANDS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:PAQUES B.V.; REEL/FRAME:028326/0078 EFFECTIVE DATE : 20120516

US6372139 BA	20140416	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US6372139 BA	20140512	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US6372139 BA	20140512	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	TEXT : PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362
US6372139 BA	20140603	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 20140416
US6372139 BA	20201106	PEXP		Calculated Patent Term Expiry	

Title: WASTE WATER TREATMENT SEPARATES FATS AND FLOATING SUBSTANCES - WITH PHOSPHATE(S) FOR **ANAEROBIC** TREATMENT PRODUCING ORGANIC ACIDS FOR BIOLOGICAL TREATMENT PROCESS, REDUCES CONSUMPTION OF ACETIC ACID, PHOSPHATE PPTN. AGENTS, SALINIFICATION AND CORROSION

Abstract: In a water treatment process, phosphates, fats and floating matter emerging from a waste water treatment plant are captured and biologically treated. The novelty is that: (a) the fats and floating substances are sepd. and subjected to **anaerobic** treatment to produce organic acids which can be easily decomposed; (b) the resulting organic acids are discharged to a water treatment plant to improve the phosphate return soln., and (c) the phosphates are then eliminated using the conventional process. Also claimed is a process where the fats and floating matter are subjected to an at least single-stage treatment in which the reaction stage results in the formation of easily degradable organic acids, and that the subsequent stage results in the prodn. of biogas. The organic acids are then discharged together with externally-supplied organic substances, such as acetic acid or methanol, to a water treatment plant bio-P basin or the **anaerobic** treatment zones.

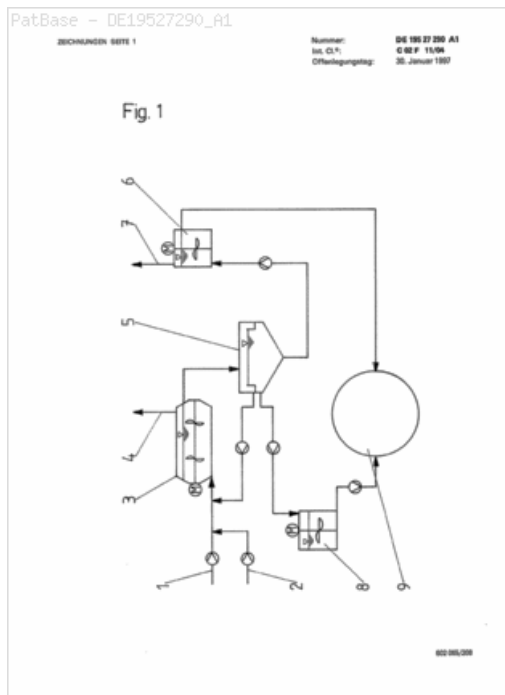
Classifications:

International (IPC 8-9): C02F3/12 C02F3/28 (Advanced/Invention);
C02F3/12 C02F3/28 (Core/Invention)

International (IPC 1-7): C02F11/04 C02F3/00 C02F3/12 C02F3/28
C02F3/30

CPC: Y02E50/343 C02F3/1215 C02F3/28 Y02W10/15

European: C02F3/12A4 C02F3/28



Family:

Publication number	Publication date	Application number	Application date
DE19527290 A1	19970130	DE19951027290	19950726

Priority:

DE19951027290 19950726

Probable Assignee: RENTEC GMBH ABWASSERTECHNIK

Assignee(s): (std): RENTEC GMBH ABWASSERTECHNIK

Assignee(s): RENTEC GMBH ABWASSERTECHNIK 99996 MENTERODA DE

Inventor(s): (std): MOESER HARALD DR ; VOLLMER RAINER DR

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
DE19527290 A1	19970130	LSPB	+	published / reissued	
DE19527290 A1	19990909	LSLE	-8139	DISPOSAL/NON-PAYMENT OF THE ANNUAL FEE	

Title: SALT-TOLERANT **ANAEROBIC** BACTERIUM AND APPLICATION THEREOF

Abstract: The invention provides a salt-tolerant **anaerobic** bacterium and application thereof. The salt-tolerant **anaerobic** bacterium was deposited in China General Microbiological Culture Collection Center on July 8, 2016, with the deposit number CGMCC NO. 5503 and the deposit name (Pectinatus brassicae) ZCTY. The salt-tolerant **anaerobic** bacterium, provided by the invention, is taken from salt-rich organic industrial wastewater, is obtained by separation and **purification**, and is identified as a new strain. According to a result of morphological identification and analysis of ribosomal RNA sequences, the salt-tolerant **anaerobic** bacterium is identified as Pectinatus brassicae, and is capable of self-growing by utilizing organic matters contained in the salt-rich organic industrial wastewater under an **anaerobic** condition. The salt-tolerant **anaerobic** bacterium, provided by the invention, can use the salt-rich organic industrial wastewater as a carbon source, a nitrogen source and an energy source for self-growing under the **anaerobic** condition, thereby achieving the effects of cleaning wastewater and reducing environmental pollution of the salt-rich organic industrial wastewater. An environmental protection method using microorganisms to digest pollutants is simple, effective, economical, environmentally friendly, and low in cost.

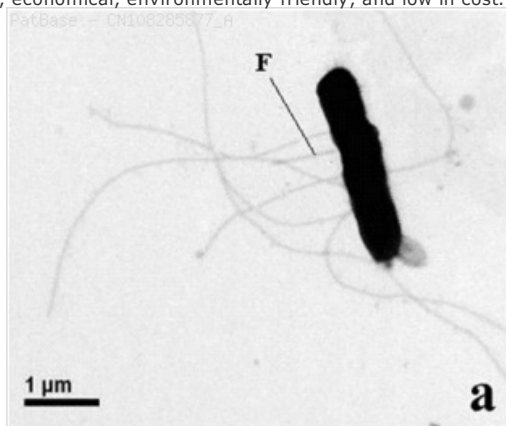
Classifications:

International (IPC 8-9): C02F103/32 C02F103/34 C02F3/34

C12N1/20 C12R1/01 (Advanced/Invention);

C02F103/32 C02F103/34 C12R1/01 (Advanced/Non-invention)

CPC: C12R1/01 C02F3/34 C02F2103/32 C02F2103/34 C12N1/20



Family:

Publication number	Publication date	Application number	Application date
CN108285877 A	20180717	CN201711058297	20171101

Priority:

CN201711058297 20171101

Probable Assignee:

CHEN ZHILIANG

Assignee(s): (std):

CHEN ZHILIANG

Assignee(s):

CONFRONTATION LIANG CHEN

Inventor(s): (std):

CHEN ZHILIANG

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN108285877 A	20180717	LSPB	+	published / reissued	
CN108285877 A	20180717	LSPB	PB01	PUBLICATION	

Title: PROCESS FOR BIOLOGICAL DENITRIFICATION OF EFFLUENTS

Abstract: The present invention is directed to a process for biological denitrification of effluents, containing up to 10 g/l of nitric nitrogen, which comprises using an active denitrification support made of selected high performance denitrifying bacteria fixed on a neutral support.

Classifications:

International (ipc 8-9): C02F3/00 C02F3/28 C07K17/00 C12N11/00 (Advanced/Invention);

C02F3/28 (Core/Invention)

International (ipc 1-7): A23L1/212 C02C1/02 C02C1/14 C02C5/10 C02F11/02 C02F3/00 C02F3/28 C02F3/34 C07K17/00 C12N11/00 C12N11/14

CPC: C02F3/2806 Y10S210/903 Y10S435/813 Y10S435/874

European: C02F3/28C

US: 210/12 210/615 210/903 435/176 435/245 435/262 435/813 435/874

Family:

Publication number	Publication date	Application number	Application date
AU197837808 A1	19800110	AU19780037808	19780706
AU520638 B2	19820218	AU19780037808	19780706
BR7804409 A	19790228	BR19780004409	19780707
CA1118377 A1	19820216	CA19780306976	19780707
DE2861782 D1	19820624	DE19782861782	19780703
DK306278 A	19790109	DK19780003062	19780707
EP0000461 A1	19790124	EP19780400049	19780703
EP0000461 B1	19820505	EP19780400049	19780703
FR2396726 A1	19790202	FR19770021119	19770708
FR2396726 B1	19820226	FR19770021119	19770708
IE47023 B	19831130	IE19780001365	19780707
IE781365 L	19790108	IE19780001365	19780707
IT1111478 A	19860113	IT19780068429	19780619
IT7868429 A0	19780619	IT19780068429	19780619
NO151700 B	19850211	NO19780002380	19780707
NO151700 C	19850522	NO19780002380	19780707
NO782380 A	19790109	NO19780002380	19780707
NO782380 L	19790109	NO19780002380	19780707
SE436349 B	19841203	SE19780007648	19780707
SE436349 C	19850314	SE19780007648	19780707
SE7807648 A	19790109	SE19780007648D	19780707
US4209390 A	19800624	US19780922343	19780706
US4318988 A	19820309	US19790106037	19791221
ZA7803913 A	19790725	ZA19780003913	19780707

Priority:

FR19770021119 19770708 US19780922343 19780706 CA19780306976 19780707

Probable Assignee: UGINE KUHLMANN

Assignee(s): (std): UGINE KUHLMANN ; PROD CHIMUQUES ; PRODUITS CHIMIQUES UGINE KUHLM

Assignee(s): UGINE KUHLMANN PRODUITS CHIMIQUE ; PRODUITS CHIMIQUES UGINE KUHLMANN ; PRODUITS CHIMUQUES ; PRODUITS CHIMIQUES UGINE KUHLMANN ; UGINE KUHLMANN PROD CHIMIQUES ; VERGNAULT JOEL ; UGINE KUHLMANN PROD CHIM ; CABANE BRUNO ; KUHLMANN PROD CHIMIQUES UGINE ; KUHLMANN U PROD CHIM ; KUHLMANN U PRODUITS CHIMIQUES ; P C U K PRODUITS CHIMIQUES UGINE KUHLMANN ; P C U K UGINE KUHLMANN PROD CHIM ; PCUK PRODUITS CHIMIQUES UGINE KUHLMANN ; PCUK UGINE KUHLMANN PROD CHIM

Inventor(s): (std): CABANE BRUNO ; VERGNAULT JOEL ; CABANE B ; VERGNAULT J

Inventor(s): BRUNO CABANE ET JOEL VERGNAULT ; J VERGNAULT ; B CABANE ; BRUNO CABANE ; JOEL VERGNAULT

Agent(s): ROBIC ROBIC AND ASSOCIES ASSOCIATES

Designated states: BE DE FR GB LU NL

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU197837808 A1	19800110	LSPB	+	published / reissued	
AU520638 B2	19820218	LSGT	+	granted / extensions (spc, cpc, pte)	
AU520638 B2	19980706	PEXP		Calculated Patent Term Expiry	
BR7804409 A	19790228	LSPB	+	published / reissued	
DE2861782 D1	19930708	LSLE	-8339	CEASED/NON-PAYMENT OF THE ANNUAL FEE	
DK306278 A	19790109	LSPB	+	published / reissued	
DK306278 A	19870420	LSWD	-ATS	APPLICATION WITHDRAWN	
EP0000461 A1	19790124	LSPB	+	published / reissued	
EP0000461 A1	19790919	LSES	+17P	REQUEST FOR EXAMINATION FILED	

EP0000461 B1	19820505	LSGT	+	granted / extensions (spc, cpc, pte)	
EP0000461 B1	19820731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LU NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 19820731
EP0000461 B1	19890628	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LU PAYMENT DATE : 19890628 YEAR OF FEE PAYMENT : 12
EP0000461 B1	19890731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL PAYMENT DATE : 19890731 YEAR OF FEE PAYMENT : 12
EP0000461 B1	19910201	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL LAPSED DATE : 19910201
EP0000461 B1	19910318	LSLE	-NLV4	NL: LAPSED OR ANULLED DUE TO NON-PAYMENT OF THE ANNUAL FEE	REF COUNTRY CODE : EP
EP0000461 B1	19910624	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 19910624 YEAR OF FEE PAYMENT : 14
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EP0000461 B1	19920731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE LAPSED DATE : 19920731
EP0000461 B1	19930131	LSLE	-BERE	BE: LAPSED	PARTYTYPE : OWNER REF COUNTRY CODE : EP OWNER : PCUK PRODUITS CHIMIQUES UGINE KUHLMANN EFFECTIVE DATE : 19920731
EP0000461 B1	19930303	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	REF COUNTRY CODE : EP EFFECTIVE DATE : 19920703
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EP0000461 B1	19930401	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO	COUNTRY OF REF DOCUMENT : DE LAPSED DATE : 19930401

EPO]					
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FR2396726 A1	19790202	LSPB	+	published / reissued	
FR2396726 B1	19820226	LSGT	+	granted / extensions (spc, cpc, pte)	
FR2396726 B1	19850524	LSLE	-ST	NOTIFICATION OF LAPSE	
FR2396726 B1	19850531	LSAS	TP	TRANSMISSION OF PROPERTY	
FR2396726 B1	19850705	LSAS	CD	CHANGE OF NAME OR COMPANY NAME	
FR2396726 B1	19850830	LSLI	CL	CONCESSION TO GRANT LICENCES	
FR2396726 B1	19970708	PEXP		Calculated Patent Term Expiry	
IE47023 B	19831130	LSGT	+	granted / extensions (spc, cpc, pte)	
IE47023 B	19980707	PEXP		Calculated Patent Term Expiry	
IT1111478 A	19860113	LSGT	+	granted / extensions (spc, cpc, pte)	
IT1111478 A	19980619	PEXP		Calculated Patent Term Expiry	
NO151700 B	19850211	LSPB	+	published / reissued	
NO151700 C	19850522	LSGT	+	granted / extensions (spc, cpc, pte)	
NO151700 C	19980707	PEXP		Calculated Patent Term Expiry	
NO782380 A	19790109	LSPB	+	published / reissued	
SE436349 B	19841203	LSPB	+	published / reissued	
SE436349 B	19950131	LSLE	-NUG	PATENT HAS LAPSED	TEXT : 7807648-6 EFFECTIVE DATE : 19910211
SE436349 C	19850314	LSGT	+	granted / extensions (spc, cpc, pte)	
SE436349 C	19980707	PEXP		Calculated Patent Term Expiry	
SE7807648 A	19790109	LSPB	+	published / reissued	
US4209390 A	19800624	LSGT	+	granted / extensions (spc, cpc, pte)	
US4209390 A	19800624	LSGT	PAT1	Patented Case	
US4209390 A	19980706	PEXP		Calculated Patent Term Expiry	
US4318988 A	19820309	LSGT	+	granted / extensions (spc, cpc, pte)	
US4318988 A	19820526	LSGT	PAT1	Patented Case	
US4318988 A	19820526	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US4318988 A	19991221	PEXP		Calculated Patent Term Expiry	
ZA7803913 A	19790725	LSGT	+	granted / extensions (spc, cpc, pte)	
ZA7803913 A	19940706	PEXP		Calculated Patent Term Expiry	

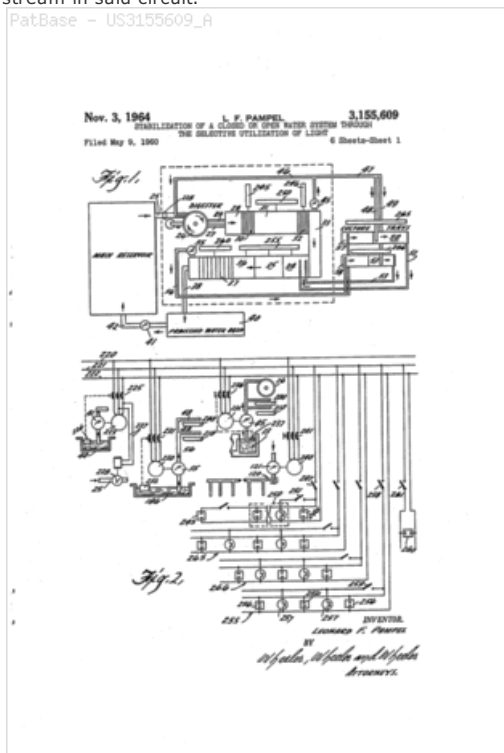
Title: STABILIZATION OF A CLOSED OR OPEN WATER SYSTEM THROUGH THE SELECTIVE UTILIZATION OF LIGHT

Abstract: (Claim 1) 1. A water system havin- a rose--voir connected in a closed main stream c4cuit havin.- in the followin.- order, a d;ges',_-r. an oxidation tu_-btilen-_e reactor, a photosynthetic process tank, a calcium treatmei)t tanl; s,,iid system further havin.- a plurality of riLTes e,,ichprovided withasuierposed li.-ht source; one of said riffles '_iavin_- a superposed liglit Go source providing ultra-violet li._ht _N,ave !en.-th range below 300 angstroms and another of said riffles havin._ a continuous source of natural light, and means for directing said main stream in said circuit.

Classifications:

International (IPC 8-9): C02F1/32 C02F3/00 C02F3/02 C02F3/32 (Advanced/Invention);
C02F1/32 C02F3/00 C02F3/02 C02F3/32 (Core/Invention)
CPC: Y10S435/946 C02F3/02 C02F1/325 C02F3/006 C02F3/32 C02F2201/3221 Y02W10/37 Y02W10/15
European: C02F1/32D C02F3/00R C02F3/02 C02F3/32 M02F201/322A
US: 119/161 119/227 210/259 210/602 210/622 210/748 210/748.11 435/262 435/946 47/1.4 47/59R

PatBase - US3155609_A



Family:

Publication number	Publication date	Application number	Application date
US3155609 A	19641103	US19600027620	19600509

Priority:

US19600027620 19600509

Probable Assignee:

FREDRICK PAMPEL LEONARD

Assignee(s): (std):

FREDRICK PAMPEL LEONARD

Inventor(s): (std):

FREDRICK PAMPEL LEONARD

Inventor(s):

PAMPEL LEONARD FREDRICK

Legal status (INPADOC)

[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
US3155609 A	19641103	LSGT	+	granted / extensions (spc, cpc, pte)	

Title: SYSTEM AND METHOD FOR IMPROVED TREATMENT OF WASTEWATER

Abstract: A method and system for treating sludge in a wastewater facility involving a novel concentration step optimises the energy balance and sludge solids mass reduction incurred from concentration and low pressure homogenization of the sludge.

Classifications:

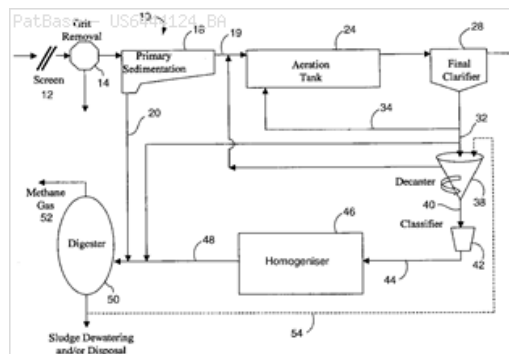
International (IPC 8-9): B01D21/00 B01D21/26 C02F11/00 C02F11/02 C02F11/04 C02F11/12 (Advanced/Invention); B01D21/00 B01D21/26 C02F11/02 C02F11/04 C02F11/12 (Advanced/Non-invention); B01D21/00 B01D21/26 C02F11/00 C02F11/02 C02F11/04 C02F11/12 (Core/Invention)

International (IPC 1-7): B01D21/00 B01D21/26 C02F11/00 C02F11/02 C02F11/04 C02F11/12 C02F3/28 C02F3/30

CPC: C02F11/00 C02F11/04 Y02E50/343

European: C02F11/00 C02F11/04 Y02E50/34B

US: 210/202 210/259 210/512.1 210/603 210/609 210/630



Family:

Publication number	Publication date	Application number	Application date
AT259335 E	20040215	AT20000953371T	20000825
AU200065881 A1	20010326	AU20000065881	20000825
AU200065881 A5	20010326	AU20000065881D	20000825
AU774325 B2	20040624	AU20000065881	20000825
DE19940994 A1	20010301	DE19991040994	19990828
DE19940994 B4	20040226	DE19991040994	19990828
DE60008252 D1	20040318	DE20006008252	20000825
DE60008252 D1	20040318	DE20006008252T	20000825
DE60008252 T2	20041202	DE20006008252T	20000825
DK1212262 T3	20040614	DK20000953371T	20000825
EP1212262 A1	20020612	EP20000953371	20000825
EP1212262 B1	20040211	EP20000953371	20000825
ES2215705 T3	20041016	ES20000953371T	20000825
JP2003508189 T2	20030304	JP20010519611T	20000825
JP4754749 B2	20110824	JP20010519611T	20000825
KR100729470 B1	20070615	KR20027002660	20000825
KR20020033779 A	20020507	KR20027002660	20000825
PT1212262 T	20040630	PT20000953371T	20000825
US6444124 BA	20020903	US20000648047	20000825
WO0116037 A1	20010308	WO20001B01194	20000825

Priority:

DE19991040994 19990828 DE20006008252T 20000825 WO20001B01194 20000825
WO20001B01194 20020227

Probable Assignee: CLAUSTHALER UMWELTECHNIKINSTI

Assignee(s): (std): CLAUSTHALER UMWELTECHNIK INST ; CLAUSTHALER UMWELTECHNIK INST GMBH CUTEC I ; CLAUSTHALER UMWELTECHNIK INST GMBH CUTEC INST ; CLAUSTHALER UMWELTECHNIKINSTI ; CLAUSTHALER UMWELTECHNIKINST

Assignee(s): CLAUSTHALER UMWELTECHNIKINST GMBH CUTEC INST ; CLAUS REMOVAL AMBIENT UHM TECHNICIAN OPERABLE WELL TECH INST ; CLAUSTHALER UMWELTECHNIKINSTITUT GMBH CUTEC INST ; CLAUSTHALER UMWELTECHNIKINSTITUT GMBH CUTEC INSTITUT ; SIEVERS MICHAEL ; ONYECHE THEODORE ; KLAUS THALER PREMIUM TECHNICAL INST OF MICE M WELLS NON H QUEUES TECH INSTITUT ; CLAUSTHALER UMWELTECHNIK INST GMBH CUTEC INSTITUT ; CLAUSTHALER UMWELTECHNIK INSTITUT GMBH CUTEC ; CLAUSTHALER UMWELTECHNIK INSTITUT GMBH CUTEC INSTITUT

Inventor(s): (std): THEODORE ONYECHE ; MICHAEL SIEVERS ; SIEVERS MICHAEL ; ONYECHE THEODORE

Agent(s): SPRUSON AND FERGUSON; FISHER ADAMS KELLY; FISHER ADAMS KELLY PTY LTD; FISHER ADAMS KELLY CALLINANS

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 CR CU CY CZ DE DK DM DZ 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 LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ 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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AT259335 E	20040215	LSGT	+	granted / extensions (spc, cpc, pte)	
AT259335 E	20041115	LSPB	+UEP	PUBLICATION OF TRANSLATION OF EUROPEAN PATENT SPECIFICATION	REF DOCUMENT NUMBER : 1212262 COUNTRY OF REF DOCUMENT : EP
AT259335 E	20200825	PEXP		Calculated Patent Term Expiry	

AU200065881 A1	20010326	LSPB	+	published / reissued	
AU200065881 A5	20010726	LSLE	-MK6	APPLICATION LAPSED SECTION 142(2) (F)/REG. 8.3(3) - PCT APPLIC. NOT ENTERING NATIONAL PHASE	
AU774325 B2	20040624	LSGT	+	granted / extensions (spc, cpc, pte)	
AU774325 B2	20010726	LSLE	-MK6	APPLICATION LAPSED SECTION 142(2) (F)/REG. 8.3(3) - PCT APPLIC. NOT ENTERING NATIONAL PHASE	
AU774325 B2	20041021	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU774325 B2	20200825	PEXP		Calculated Patent Term Expiry	
DE19940994 A1	20010301	LSPB	+	published / reissued	
DE19940994 A1	20010301	LSES	+OP8	REQUEST FOR EXAMINATION AS TO PARAGRAPH 44 PATENT LAW	
DE19940994 B4	20040226	LSGT	+	granted / extensions (spc, cpc, pte)	
DE19940994 B4	20040819	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DE19940994 B4	20110622	LSDW	-R119	APPLICATION DEEMED WITHDRAWN, OR IP RIGHT LAPSED, DUE TO NON-PAYMENT OF RENEWAL FEE	EFFECTIVE DATE : 20110301
DE19940994 B4	20190828	PEXP		Calculated Patent Term Expiry	
DE60008252 D1	20050310	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
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DE60008252 T2	20041202	LSGT	+	granted / extensions (spc, cpc, pte)	
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DE60008252 T2	20200825	PEXP		Calculated Patent Term Expiry	
DK1212262 T3	20040614	LSGT	+	granted / extensions (spc, cpc, pte)	
DK1212262 T3	20200825	PEXP		Calculated Patent Term Expiry	
EP1212262 A1	20020612	LSPB	+	published / reissued	
EP1212262 A1	20020612	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20020216
EP1212262 A1	20020904	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20020718
EP1212262 A1	20030827	LSRE	RTI1	TITLE (CORRECTION)	TEXT : METHOD FOR TREATING SLUDGE IN A WASTEWATER FACILITY
EP1212262 B1	20040211	LSGT	+	granted / extensions (spc, cpc, pte)	
EP1212262 B1	20040211	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CY NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20040211
EP1212262 B1	20040211	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : FG4D
EP1212262 B1	20040213	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP

EP1212262 B1	20040310	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : FG4D
EP1212262 B1	20040614	LSRE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GR REF LEGAL EVENT CODE : EP REF DOCUMENT NUMBER : 20040401557 COUNTRY OF REF DOCUMENT : GR
EP1212262 B1	20040726	LSRV	-LTIE	LT: INVALIDATION OF EUROPEAN PATENT OR PATENT EXTENSION	REF COUNTRY CODE : EP EFFECTIVE DATE : 20040211
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EP1212262 B1	20040831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MC NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20040831
EP1212262 B1	20041016	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : ES REF LEGAL EVENT CODE : FG2A REF DOCUMENT NUMBER : 2215705 COUNTRY OF REF DOCUMENT : ES KIND CODE OF REF DOCUMENT : T3 DESIGNATED STATE(S) :
EP1212262 B1	20050202	LSGT	+26N	NO OPPOSITION FILED	EFFECTIVE DATE : 20041112
EP1212262 B1	20050601	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : MM4A
EP1212262 B1	20111031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DK PAYMENT DATE : 20110824 YEAR OF FEE PAYMENT : 12
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EP1212262 B1	20121031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE PAYMENT DATE : 20120823 YEAR OF FEE PAYMENT : 13
EP1212262 B1	20130131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PT PAYMENT DATE : 20120227 YEAR OF FEE PAYMENT : 13
EP1212262 B1	20130131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL PAYMENT DATE : 20120824 YEAR OF FEE PAYMENT : 13
EP1212262 B1	20130228	LSLE	-BERE	BE: LAPSED	PARTYTYPE : OWNER REF COUNTRY CODE : EP OWNER : CLAUSTHALER UMWELTTECHNIK-INSTITUT G.M.B.H. *CUTEC EFFECTIVE DATE : 20120831
EP1212262 B1	20130328	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : PL
EP1212262 B1	20130402	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DK REF LEGAL EVENT CODE : EBP
EP1212262 B1	20130415	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : MM01 REF DOCUMENT NUMBER : 259335 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20120825
EP1212262 B1	20130430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20120831
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EP1212262 B1	20130531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20120831
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EP1212262 B1	20131018	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : ES REF LEGAL EVENT CODE : FD2A EFFECTIVE DATE : 20131018
EP1212262 B1	20131031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20120826
EP1212262 B1	20140131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20131022 YEAR OF FEE PAYMENT : 14
EP1212262 B1	20140304	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : PT REF LEGAL EVENT CODE : MM4A TEXT : LAPSE DUE TO NON-PAYMENT OF FEES EFFECTIVE DATE : 20140225
EP1212262 B1	20140319	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : NL REF LEGAL EVENT CODE : V1 EFFECTIVE DATE : 20140301
EP1212262 B1	20140401	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : SE REF LEGAL EVENT CODE : EUG
EP1212262 B1	20140430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20130826
EP1212262 B1	20140430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20140301
EP1212262 B1	20140630	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PT NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20140225
EP1212262 B1	20141031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20140901 YEAR OF FEE PAYMENT : 15
EP1212262 B1	20141128	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20140819 YEAR OF FEE PAYMENT : 15
EP1212262 B1	20150429	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	REF COUNTRY CODE : EP EFFECTIVE DATE : 20140825
EP1212262 B1	20150731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20140825
EP1212262 B1	20160301	LSDW	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R119 REF DOCUMENT NUMBER : 60008252 COUNTRY OF REF DOCUMENT : DE
EP1212262 B1	20160603	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : ST EFFECTIVE DATE : 20160429

EP1212262 B1	20160729	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20160301
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EP1212262 B1	20200825	PEXP		Calculated Patent Term Expiry	
ES2215705 T3	20041016	LSGT	+	granted / extensions (spc, cpc, pte)	
ES2215705 T3	20200825	PEXP		Calculated Patent Term Expiry	
JP2003508189 T2	20070725	LSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	TEXT : JAPANESE INTERMEDIATE CODE: A621 EFFECTIVE DATE : 20070724
JP2003508189 T2	20100512	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	TEXT : JAPANESE INTERMEDIATE CODE: A131 EFFECTIVE DATE : 20100511
JP2003508189 T2	20101111	LSRE	A521	WRITTEN AMENDMENT	TEXT : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20101110
JP2003508189 T2	20110427	LSGT	+A01	WRITTEN DECISION TO GRANT A PATENT OR TO GRANT A REGISTRATION (UTILITY MODEL)	TEXT : JAPANESE INTERMEDIATE CODE: A01 EFFECTIVE DATE : 20110426
JP2003508189 T2	20110602	LSFE	+A61	FIRST PAYMENT OF ANNUAL FEES (DURING GRANT PROCEDURE)	TEXT : JAPANESE INTERMEDIATE CODE: A61 EFFECTIVE DATE : 20110526
JP2003508189 T2	20110603	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 3
JP2003508189 T2	20110603	LSGT	+R150	CERTIFICATE OF PATENT OR REGISTRATION OF UTILITY MODEL	TEXT : JAPANESE INTERMEDIATE CODE: R150
JP4754749 B2	20110824	LSGT	+	granted / extensions (spc, cpc, pte)	
JP4754749 B2	20140603	LSLE	-LAPS	CANCELLATION BECAUSE OF NO PAYMENT OF ANNUAL FEES	
JP4754749 B2	20200825	PEXP		Calculated Patent Term Expiry	
KR100729470 B1	20070615	LSGT	+	granted / extensions (spc, cpc, pte)	
KR100729470 B1	20050822	LSES	A201	REQUEST FOR EXAMINATION	
KR100729470 B1	20060920	LSES	-E902	NOTIFICATION OF REASON FOR REFUSAL	
KR100729470 B1	20070328	LSGT	+E701	DECISION TO GRANT OR REGISTRATION OF PATENT RIGHT	
KR100729470 B1	20070611	LSGT	+GRNT	WRITTEN DECISION TO GRANT	
KR100729470 B1	20080423	LSRE	G170	PUBLICATION OF CORRECTION	
KR100729470 B1	20120524	LSFE	FPAY	ANNUAL FEE PAYMENT	PAYMENT DATE : 20120525 YEAR OF FEE PAYMENT : 6
KR100729470 B1	20130612	LSLE	-LAPS	LAPSE DUE TO UNPAID ANNUAL FEE	
KR100729470 B1	20220227	PEXP		Calculated Patent Term Expiry	
KR20020033779 A	20020507	LSPB	+	published / reissued	
PT1212262 T	20040630	LSGT	+	granted / extensions (spc, cpc, pte)	
PT1212262 T	20200825	PEXP		Calculated Patent Term Expiry	

US6444124 BA	20020903	LSGT	+	granted / extensions (spc, cpc, pte)	
US6444124 BA	20030909	LSRE	CC	CERTIFICATE OF CORRECTION	
US6444124 BA	20060517	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US6444124 BA	20100621	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US6444124 BA	20140903	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US6444124 BA	20140929	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US6444124 BA	20140929	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	TEXT : PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362
US6444124 BA	20141021	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 20140903
US6444124 BA	20201005	PEXP		Calculated Patent Term Expiry (PTA 41 days)	
WO0116037 A1	20010308	LSPB	+	published / reissued	
WO0116037 A1	20020216	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2000953371 COUNTRY OF REF DOCUMENT : EP
WO0116037 A1	20020226	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 65881/00 COUNTRY OF REF DOCUMENT : AU
WO0116037 A1	20020227	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 1020027002660 COUNTRY OF REF DOCUMENT : KR
WO0116037 A1	20020507	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 1020027002660 COUNTRY OF REF DOCUMENT : KR
WO0116037 A1	20020612	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 2000953371 COUNTRY OF REF DOCUMENT : EP
WO0116037 A1	20020808	LSWD	REG	REFERENCE TO NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : 8642
WO0116037 A1	20040211	LSGT	+WWG	WIPO INFORMATION: GRANT IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 2000953371 COUNTRY OF REF DOCUMENT : EP
WO0116037 A1	20041007	LSGT	+WWG	WIPO INFORMATION: GRANT IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 65881/00 COUNTRY OF REF DOCUMENT : AU

Title: THIOL SULFONE METALLOPROTEASE INHIBITORS

Abstract: This invention is directed to proteinase (protease) inhibitors, and more particularly to thiol sulfone inhibitors for matrix metalloproteinase 13(MMP-13), compositions of proteinase inhibitors, intermediates for the syntheses of proteinase inhibitors, processes for the preparation of proteinase inhibitors and processes for treating pathological conditions associated with pathological matrix metalloproteinase activity related to MMP-13.

Classifications:

International (IPC 8-9): A61K31/10 A61K31/165 A61K31/17 A61K31/192 A61K31/216 A61K31/22 A61K31/265 A61K31/27 A61K31/33 A61K31/4164 A61K31/426 A61K31/4402 A61K31/4406 A61K31/4409 A61K31/5375 A61K31/5377 A61P19/04 A61P43/00 C02F11/04 C02F3/28 C07C237/20 C07C317/22 C07C317/24 C07C317/32 C07C323/65 C07C327/22 C07C327/24 C07C327/26 C07C327/28 C07C327/32 C07D213/32 C07D213/34 C07D213/70 C07D233/84 C07D277/20 C07D277/36 C07D295/08 C07D295/088 C07D295/12 C07D317/64 (Advanced/Invention); A61K31/10 A61K31/165 A61K31/4409 A61K31/5375 A61P43/00 (Advanced/Non-invention); C02F11/04 C02F3/28 (Core/Invention)

International (IPC 1-7): A01N37/02 A01N37/10 A01N37/18 A01N41/12 A01N43/40 A01N43/50 A01N43/78 A61K31/10 A61K31/165 A61K31/19 A61K31/215 A61K31/22 A61K31/265 A61K31/27 A61K31/33 A61K31/40 A61K31/415 A61K31/425 A61K31/44 A61K31/535 A61K31/5375 A61P43/00 C07C237/20 C07C317/22 C07C317/24 C07C317/32 C07C323/65 C07C327/22 C07C327/24 C07C327/26 C07D213/32 C07D213/34 C07D213/70 C07D233/84 C07D277/36 C07D29 C07D295/08 C07D295/088 C07D295/13 C07D295/26 C07D317/64

CPC: Y02W10/12 A61K31/10 A61K31/17 A61K31/4164 A61K31/426 A61K31/4402 A61K31/4406 A61K31/5377 C07C317/22 C07C323/65 C07C327/24 C07C327/26 C07C2601/08 C07C2601/14

European: A61K31/10 A61K31/17 A61K31/4164 A61K31/426 A61K31/4402 A61K31/4406 A61K31/5377 C07C317/22 C07C323/65 C07C327/24 C07C327/26 M07C101/08 M07C101/14

US: 514/237.8 514/239.2 514/345 514/369 514/386 514/486 514/543 514/546 514/568 514/570 514/571 514/618 514/630 514/707 514/709 544/158 544/159 544/160 546/290 546/339 548/186 548/316.4 560/11 560/12 560/254 562/429 568/23 568/29 568/31 568/32

PatBase - RU2221781 Область техники

Это изобретение относится к ингибиторам протеиназ (протеаз), и более конкретно, к тиолсульфоновым ингибиторам для матричных металлопротеиназ, композициям с ингибиторами протеиназ, промежуточным соединениям для синтеза ингибиторов протеиназ, способам получения ингибиторов протеиназ и способам лечения патологических состояний, связанных с патологической активностью матричных металлопротеиназ.

Предпосылки создания изобретения

Соединительная ткань, экстраклеточные матричные элементы и базальные мембраны являются необходимыми компонентами у всех млекопитающих. Эти компоненты являются биологическими материалами, которые обеспечивают жесткость, дифференциацию, присоединение и, в некоторых случаях, эластичность биологическим системам, включая человеческие существа и других млекопитающих. Компоненты соединительных тканей включают, например, коллаген, эластин, протеогликаны, фибронектин и ламинин. Эти биохимические вещества образуют такие структуры или являются компонентами таких структур, как кожа, кости, зубы, сухожилия, хрящи, базальные мембраны, кровеносные сосуды, роговица и стекловидное тело.

В нормальном состоянии потеря соединительной ткани и/или процессы восстановления (заживления) регулируются и находятся в равновесии. Потеря этого баланса по какой-либо причине при-

Family:

Publication number	Publication date	Application number	Application date
AT233552 E	20030315	AT19970936169T	19970722
AU199738904 A1	19980210	AU19970038904	19970722
AU714687 B2	20000106	AU19970038904	19970722
BRPI9710758 A	19990817	BR1997PI10758	19970722
CA2260859 AA	19990112	CA19972260859	19970722
CN1230884 A	19991006	CN19971098098	19970722
CZ16799 A3	19990616	CZ19990000167	19970722
CZ16799 U1	20061011	CZ20060017828U	20060612
CZ9900167 A3	19990616	CZ19990000167	19970722
DE69719538 D1	20030410	DE19976019538	19970722
DE69719538 T2	20040219	DE19976019538T	19970722
DK0939628 T3	20030707	DK19970936169T	19970722
EP0939628 A1	19990908	EP19970936169	19970722
EP0939628 A4	19991222	EP19970936169	19970722
EP0939628 B1	20030305	EP19970936169	19970722
ES2194209 T3	20031116	ES19970936169T	19970722
IL128079 A0	19991130	IL19970128079	19970722
JP2001505869 T2	20010508	JP19980507196T	19970722
KR200000067963 A	20001125	KR19997000465	19970722
NO990262 A	19990317	NO19990000262	19990121
NO990262 A0	19990121	NO19990000262	19990121
NO990262 L	19990317	NO19990000262	19990121
NZ333824 A	20000825	NZ19970333824	19970722
PL331369 A1	19990705	PL19970331369	19970722
PT939628 T	20030731	PT19970936169T	19970722
RU2221781 C2	20040120	RU19990103642	19970722
RU99103642 A	20010127	RU19990103642	19970722
US6013649 A	20000111	US19970900028	19970722
WO9803164 A1	19980129	WO1997US12874	19970722

Priority:

US19960022043 19960722 US19960022043P 19960722 US19970900028 19970722
WO1997US12874 19970722 CZ20060017828U 20060612

Probable Assignee: MONSANTO CO

Assignee(s): (std): ABBAS ZAHEER S ; DECRESCENZO GARY A ; FRESKOS JOHN N ; GETMAN DANIEL P ; HEINTZ ROBERT M ; MCDONALD JOSEPH J ; MONSANTO CO ; MISCHKE BRENT V ; USTAK SERGEJ ; VANA JAROSLAV

Assignee(s): PHARMACIA CORP ; MONSANTO CO ST LOUIS

Inventor(s): (std): FRESKOS JOHN N ; ABBAS ZAHEER S ; DECRESCENZO GARY A ; GETMAN DANIEL P ; HEINTZ ROBERT M ; MISCHKE BRENT V ; MCDONALD JOSEPH J ; FRESKOS J N ; ABBAS Z S ; DECRESCENZO G A ; ABBAS S ZAHEER ; ABBAS S ; DECRESCENZO A ; MCDONALD J ; HEINTZ M ; FRESKOS N ; GETMAN P ; MISCHKE V ; USTAK SERGEJ ; VANA JAROSLAV ; MAKDONAL D DZHOZEF DZH ; MISHKE BRENT V ; KHAJINTTS ROBERT M ; GETMAN DEHNIEL P ; DEKRESHENTSO GEHRI A ; ABBAS ZAKHIR S ; FRESKOS DZHON N

Inventor(s): BRENT V MISCHKE ; Z S ABBAS ; JOSEPH J MCDONALD ; DANIEL P GETMAN ; GARY A DECRESCENZO ; ROBERT M HEINTZ ; ZAHEER S ABBAS ; G A DECRESCENZO ; JOHN N FRESKOS ; J N FRESKOS ; DE CRESCENZO GARY A ; GETMAN DANIELP ; MCDONALD JOSEPHJ ; HEINTZ ROBERTM ; MISCHKE BRENTV ; FRESKOS JOHNN ; ABBAS ZAHEERS ; DECRESCENZO GARYA ; MAKDONAL'D DZHOZEF DZH.

Agent(s): E F WELLINGTON AND CO; OSLER HOSKIN AND HARCOURT LLP

Designated states: AL AM AT AU AZ BA BB BE BF BG BJ BR BY CA CF CG CH CI CM CN CU CZ DE DK EE ES FI FR GA GB GE GH GR HU IE IL IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MC MD MG MK MN MR MW MX NE NL NO NZ PL PT RO RU SD SE SG SI SK SN SZ TG TJ TM TR TT UA UG US UZ VN WZ

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AT233552 E	20030315	LSGT	+	granted / extensions (spc, cpc, pte)	
AT233552 E	20031015	LSPB	+UEP	PUBLICATION OF TRANSLATION OF EUROPEAN PATENT SPECIFICATION	REF DOCUMENT NUMBER : 0939628 COUNTRY OF REF DOCUMENT : EP
AT233552 E	20070415	LSLE	-REN	CEASED DUE TO NON-PAYMENT OF THE ANNUAL FEE	
AT233552 E	20170722	PEXP		Calculated Patent Term Expiry	
AU199738904 A1	19980210	LSPB	+	published / reissued	
AU714687 B2	20000106	LSGT	+	granted / extensions (spc, cpc, pte)	
AU714687 B2	20000504	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU714687 B2	20170722	PEXP		Calculated Patent Term Expiry	
BRPI9710758 A	19990817	LSPB	+	published / reissued	
BRPI9710758 A	20070522	LSFE	-B08F	APPLICATION FEES: DISMISSAL - ARTICLE 86 OF INDUSTRIAL PROPERTY LAW	TEXT : REFERENTE A 10A ANUIDADE.
BRPI9710758 A	20111116	LSLE	-B08K	LAPSE AS NO EVIDENCE OF PAYMENT OF THE ANNUAL FEE HAS BEEN FURNISHED TO INPI (ACC. ART. 87)	TEXT : REFERENTE AO DESPACHO 8.6 PUBLICADO NA RPI 1898 DE 22/05/2007.
CA2260859 AA	19990112	LSPB	+	published / reissued	
CA2260859 AA	20020517	LSSES	+EEER	EXAMINATION REQUEST	
CA2260859 AA	20070228	LSLE	-FZDE	DEAD	
CN1230884 A	19991006	LSPB	+	published / reissued	
CN1230884 A	19991006	LSPB	+C06	PUBLICATION	
CN1230884 A	20060118	LSDW	-C20	PATENT RIGHT OR UTILITY MODEL DEEMED TO BE ABANDONED OR IS ABANDONED	
CZ16799 A3	19990616	LSPB	+	published / reissued	
CZ16799 U1	20061011	LSGT	+	granted / extensions (spc, cpc, pte)	
CZ16799 U1	20061011	LSGT	+FG1K	UTILITY MODEL REGISTERED	EFFECTIVE DATE : 20060821
CZ16799 U1	20110105	LSLE	-MK1K	UTILITY MODEL EXPIRED	EFFECTIVE DATE : 20100612
CZ16799 U1	20160612	PEXP		Calculated Patent Term Expiry	
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DE69719538 T2	20170722	PEXP		Calculated Patent Term Expiry	
DK0939628 T3	20030707	LSGT	+	granted / extensions (spc, cpc, pte)	
DK0939628 T3	20170722	PEXP		Calculated Patent Term Expiry	
EP0939628 A1	19990908	LSPB	+	published / reissued	
EP0939628 A1	19990908	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 19990205
EP0939628 A4	19991222	LSSES	+A4	SUPPLEMENTARY SEARCH REPORT DRAWN UP AND DESPATCHED	EFFECTIVE DATE : 19991108
EP0939628 A4	20010523	LSSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20010409
EP0939628 B1	20030305	LSGT	+	granted / extensions (spc, cpc, pte)	
EP0939628 B1	20030305	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FI NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20030305
EP0939628 B1	20030305	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : FG4D
EP0939628 B1	20030314	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP
EP0939628 B1	20030402	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : FG4D
EP0939628 B1	20030617	LSRE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GR REF LEGAL EVENT CODE : EP REF DOCUMENT NUMBER : 20030401638 COUNTRY OF REF DOCUMENT : GR
EP0939628 B1	20031027	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20031027 YEAR OF FEE PAYMENT : 11
EP0939628 B1	20031116	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : ES REF LEGAL EVENT CODE : FG2A REF DOCUMENT NUMBER : 2194209 COUNTRY OF REF DOCUMENT : ES KIND CODE OF REF DOCUMENT : T3 DESIGNATED STATE(S) :
EP0939628 B1	20040225	LSGT	+26N	NO OPPOSITION FILED	EFFECTIVE DATE : 20031208
EP0939628 B1	20050614	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT PAYMENT DATE : 20050614 YEAR OF FEE PAYMENT : 9
EP0939628 B1	20050614	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20050614 YEAR OF FEE PAYMENT : 9
EP0939628 B1	20050615	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DK PAYMENT DATE : 20050615 YEAR OF FEE PAYMENT : 9
EP0939628 B1	20050616	LSFE	+PGFP	ANNUAL FEE PAID TO	COUNTRY OF REF DOCUMENT :

				NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	NL PAYMENT DATE : 20050616 YEAR OF FEE PAYMENT : 9
EP0939628 B1	20050623	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PT PAYMENT DATE : 20050623 YEAR OF FEE PAYMENT : 9
EP0939628 B1	20050630	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IE PAYMENT DATE : 20050630 YEAR OF FEE PAYMENT : 9
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EP0939628 B1	20050704	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE PAYMENT DATE : 20050704 YEAR OF FEE PAYMENT : 9
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EP0939628 B1	20050726	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GR PAYMENT DATE : 20050726 YEAR OF FEE PAYMENT : 9
EP0939628 B1	20050728	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE PAYMENT DATE : 20050728 YEAR OF FEE PAYMENT : 9
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EP0939628 B1	20060722	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20060722
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EP0939628 B1	20060731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT PAYMENT DATE : 20060731 YEAR OF FEE PAYMENT : 10
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EP0939628 B1	20070201	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20070201
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EP0939628 B1	20070315	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : PL
EP0939628 B1	20070320	LSLE	-EUG	SE: EUROPEAN PATENT HAS LAPSED	REF COUNTRY CODE : EP
EP0939628 B1	20070328	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON- PAYMENT OF RENEWAL FEE	REF COUNTRY CODE : EP EFFECTIVE DATE : 20060722
EP0939628 B1	20070402	LSLE	-NLV4	NL: LAPSED OR ANULLED DUE TO NON-PAYMENT OF THE ANNUAL FEE	REF COUNTRY CODE : EP EFFECTIVE DATE : 20070201
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EP0939628 B1	20070504	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : ST EFFECTIVE DATE : 20070330
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ES2194209 T3	20031116	LSGT	+	granted / extensions (spc, cpc, pte)	
ES2194209 T3	20170722	PEXP		Calculated Patent Term Expiry	
JP2001505869 T2	20040805	LSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	TEXT : JAPANESE INTERMEDIATE CODE: A621 EFFECTIVE DATE : 20040716
JP2001505869 T2	20080529	LSWD	-A762	WRITTEN ABANDONMENT OF APPLICATION	TEXT : JAPANESE INTERMEDIATE CODE: A762 EFFECTIVE DATE : 20080508
KR20000067963 A	20001125	LSPB	+	published / reissued	
KR20000067963 A	20020719	LSES	A201	REQUEST FOR EXAMINATION	
KR20000067963 A	20041025	LSES	-E902	NOTIFICATION OF REASON FOR REFUSAL	
KR20000067963 A	20050509	LSRV	-E601	DECISION TO REFUSE APPLICATION	
NO990262 A	19990317	LSPB	+	published / reissued	
NZ333824 A	20000825	LSPB	+	published / reissued	
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NZ333824 A	20040730	LSFE	+RENEW	RENEWAL (RENEWAL FEES ACCEPTED)	
PL331369 A1	19990705	LSPB	+	published / reissued	
PT939628 T	20030731	LSGT	+	granted / extensions (spc, cpc, pte)	
PT939628 T	20170722	PEXP		Calculated Patent Term Expiry	
RU2221781 C2	20040120	LSGT	+	granted / extensions (spc, cpc, pte)	
RU2221781 C2	20071220	LSLE	-MM4A	THE PATENT IS INVALID DUE TO NON-PAYMENT OF FEES	EFFECTIVE DATE : 20060723
RU2221781 C2	20170722	PEXP		Calculated Patent Term Expiry	
RU99103642 A	20010127	LSPB	+	published / reissued	
US6013649 A	20000111	LSGT	+	granted / extensions (spc, cpc, pte)	
US6013649 A	19980624	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : MONSANTO COMPANY, MISSOURI OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS: FRESKOS, JOHN N.; ABBAS, S. ZAHEER; DECRESCENZO, GARY A.; AND

US6013649 A	20030711	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US6013649 A	20080111	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US6013649 A	20080211	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US6013649 A	20080211	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	TEXT : PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362
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US6013649 A	20170722	PEXP		Calculated Patent Term Expiry	
WO9803164 A1	19980129	LSPB	+	published / reissued	
WO9803164 A1	19970722	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 97198098.5 COUNTRY OF REF DOCUMENT : CN
WO9803164 A1	19990112	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2260859 COUNTRY OF REF DOCUMENT : CA
WO9803164 A1	19990112	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2260859 COUNTRY OF REF DOCUMENT : CA KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO9803164 A1	19990118	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 1997936169 COUNTRY OF REF DOCUMENT : EP
WO9803164 A1	19990119	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : PV1999-167 COUNTRY OF REF DOCUMENT : CZ
WO9803164 A1	19990120	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 333824 COUNTRY OF REF DOCUMENT : NZ
WO9803164 A1	19990121	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 1019997000465 COUNTRY OF REF DOCUMENT : KR
WO9803164 A1	19990121	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 99-00080 COUNTRY OF REF DOCUMENT : RO
WO9803164 A1	19990121	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : PA/A/1999/000829 COUNTRY OF REF DOCUMENT : MX
WO9803164 A1	19990122	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 1998 507196 COUNTRY OF REF DOCUMENT : JP KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO9803164 A1	19990520	LSWD	REG	REFERENCE TO NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : 8642
WO9803164 A1	19990616	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : PV1999-167 COUNTRY OF REF DOCUMENT : CZ

WO9803164 A1	19990908	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 1997936169 COUNTRY OF REF DOCUMENT : EP
WO9803164 A1	20001125	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 1019997000465 COUNTRY OF REF DOCUMENT : KR
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WO9803164 A1	20050509	LSRV	-WWR	WIPO INFORMATION: REFUSED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 1019997000465 COUNTRY OF REF DOCUMENT : KR

Title: SEPTIC TANK FOR WASTE DISPOSAL SYSTEM

Abstract: (Claim 1) 1. A waste tank having first and second chambers, an inlet opening in said tank to said first chamber, an inlet opening in said tank to said second chamber, an outlet opening in said tank for said second chamber, said first chamber having an upper portion and a lower portion, a connecting conduit connecting said first and second chambers, said connecting conduit having an inlet end and an outlet end, said inlet end being positioned in said first chamber intermediate said upper and lower portions, said outlet end being positioned in said second chamber, said connecting conduit including flow control means responsive to liquid level in said first chamber for transferring liquid to said second chamber from a position substantially below the surface of liquid in said first chamber only when the surface of a liquid in said first chamber is substantially above the inlet end, said flow control means including valve means in said connecting conduit and sensing means for sensing the liquid level in said first chamber, said said sensing means cooperating with said valve means for selectively opening and closing said valve means responsive to changes

Classifications:

International (IPC 8-9): C02F3/28 C02F9/00 (Advanced/Invention); C02F3/28 C02F9/00 (Core/Invention)

International (IPC 1-7): B01D21/00 C02C1/16 C02C1/26

CPC: C02F3/28 C02F2103/002 C02F2103/005 C02F2201/001

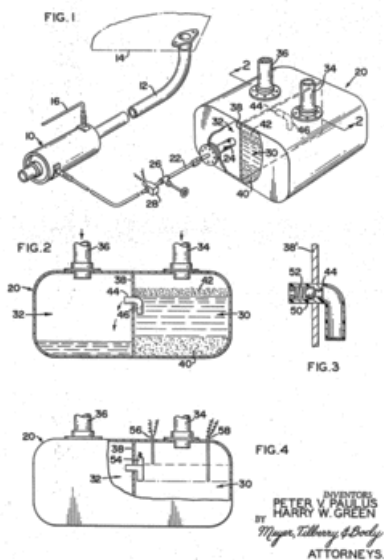
European: C02F3/28 M02F103/00C M02F103/00E M02F201/00A

US: 210/110 210/117 210/124 210/538

PatBase - US3578166_A

Patented May 11, 1971

3,578,166

**Family:**

Publication number	Publication date	Application number	Application date
US3578166 A	19710511	US19690807627	19690317

Priority:

US19690807627 19690317

Probable Assignee: STANDARD PRODUCTS CO
Assignee(s): (std): STANDARD PRODUCTS CO
Assignee(s): STANDARD PRODUCTS CO THE
Inventor(s): (std): GREEN HARRY W ; PAULUS PETER V
Inventor(s): PETER V PAULUS ; HARRY W GREEN

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US3578166 A	19710511	LSGT	+	granted / extensions (spc, cpc, pte)	

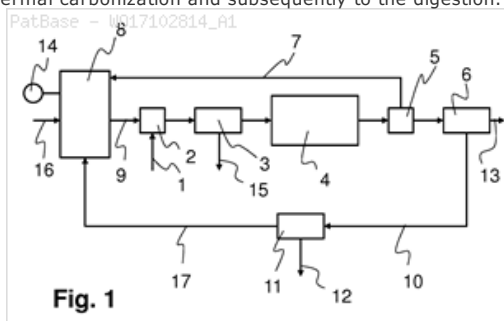
Title: METHOD FOR THE DIGESTION AND HYDROTHERMAL CARBONIZATION OF SEWAGE SLUDGE

Abstract: The invention relates to a method for hydrothermal carbonization and digestion of sewage sludge, wherein the device for hydrothermal carbonization and the device for digestion are flown through by the sewage sludge in alternating order and/or wherein the sewage sludge is first supplied to a hydrothermal carbonization and subsequently to the digestion.

Classifications:

International (IPC 8-9): C02F1/20 C02F1/52 C02F11/04 C02F11/10 C02F11/18 C02F3/28 C02F9/14 C10L5/46 C10L9/08 (Advanced/Invention)

CPC: C02F1/20 C02F9/00 C02F11/04 C02F11/121 C02F11/122 C02F11/127 C02F11/14 C02F11/18 C02F2101/105 C02F2101/163 C02F2209/001 C02F2209/42 C10L5/46 C10L9/086 C10L2290/08 C10L2290/10 C10L2290/26 Y02E50/10 Y02E50/30



Family:

Publication number	Publication date	Application number	Application date
DE102015016194 A1	20170622	DE201510016194	20151215
EP3390590 A1	20181024	EP20160816249	20161214
WO17102814 A1	20170622	WO2016EP80938	20161214

Priority:

DE201510016194 20151215 WO2016EP80938 20161214

Probable Assignee: TERRANOVA ENERGY GMBH

Assignee(s): (std): TERRANOVA ENERGY GMBH

Inventor(s): (std): BUTTMANN MARC

Agent(s): ROESSLER MATTHIAS

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 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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
DE102015016194 A1	20170622	LSPB	+	published / reissued	
EP3390590 A1	20181024	LSPB	+	published / reissued	
EP3390590 A1	20181024	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20180705
WO17102814 A1	20170622	LSPB	+	published / reissued	
WO17102814 A1	20180616	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO17102814 A1	20180716	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2016816249 COUNTRY OF REF DOCUMENT : EP
WO17102814 A1	20180720	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2016816249 COUNTRY OF REF DOCUMENT : EP EFFECTIVE DATE : 20180716

Title: Biofilm reactor, for the treatment of waste water and sewage, combines nitrification and denitrification and sludge separation in a continuous process

Abstract: The biofilm reactor, for the treatment of waste water and sewage, has a flow deflection within it in the path from the interior to the exterior. The sludge generated by the bioprocess is separated from the flow at the deflection. The reactor has a vertical cylindrical vessel (1) with a concentric vessel insert (2), connected (3) to the cover. The sludge separation (4) is mounted to the lower end of the insert. The waste falls naturally or is delivered by a pump (5), to be spread by a jet (8) over the filling (9) in the insert, to trickle through for action by the micro-organisms. Floating particles accumulate as sediment on the vessel base (10).

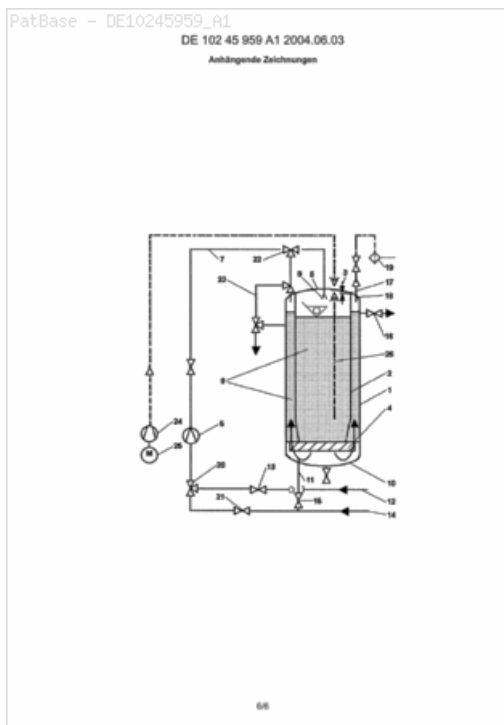
Classifications:

International (IPC 8-9): C02F3/30 (Advanced/Invention);
C02F3/30 (Core/Invention)

International (IPC 1-7): C02F3/02 C02F3/30

CPC: C02F3/301 C02F3/302

European: C02F3/30B C02F3/30D



Family:

Publication number	Publication date	Application number	Application date
DE10245959 A1	20040603	DE20021045959	20021002

Priority:

DE20021045959 20021002

Probable Assignee:

SCHWERTER DIRK

Assignee(s): (std):

SCHWERTER DIRK

Inventor(s): (std):

SCHWERTER DIRK

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
DE10245959 A1	20040603	LSPB	+	published / reissued	
DE10245959 A1	20040603	LSSES	+OM8	SEARCH REPORT AVAILABLE AS TO PARAGRAPH 43 LIT. 1 SENTENCE 1 PATENT LAW	
DE10245959 A1	20040708	LSLI	8122	NONBINDING INTEREST IN GRANTING LICENCES DECLARED	
DE10245959 A1	20050818	LSLE	-8139	DISPOSAL/NON-PAYMENT OF THE ANNUAL FEE	
DE10245959 A1	20060316	LSAS	8127	NEW PERSON/NAME/ADDRESS OF THE APPLICANT	PARTYTYPE : OWNER OWNER : SCHWERTER, DIRK, 45549 SPROCKHÖVEL, DE
DE10245959 A1	20060316	LSRE	+8170	REINSTATEMENT OF THE FORMER POSITION	
DE10245959 A1	20061116	LSLE	-8139	DISPOSAL/NON-PAYMENT OF THE ANNUAL FEE	

Title: PROCESS FOR THE AEROBIC BIOLOGICAL **PURIFICATION** OF WATER

Abstract: The invention is directed to a process for the aerobic **purification** of waste water in a reactor containing unsupported granular active sludge. The oxygen necessary for maintaining aerobic conditions within the reactor is provided in the form of an oxygen-containing gas. The oxygen-containing gas is preferably introduced into the reactor at such a place that the oxygen-containing gas provides at least some mixing action in the reactor. The invention also provides a reactor suitable for this process.

Classifications:

International (IPC 8-9): C02F3/20 C02F3/22

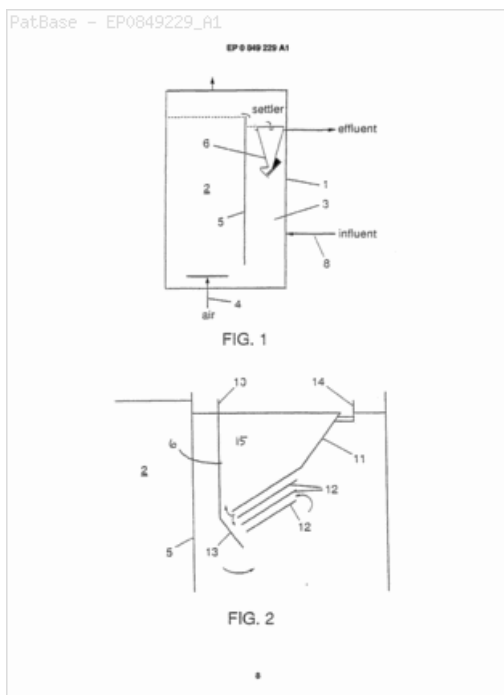
C02F3/30 (Advanced/Invention);

C02F3/20 C02F3/22 C02F3/30 (Core/Invention)

International (IPC 1-7): B01J8/22 C02F3/22 C02F3/30

CPC: C02F3/223 C02F3/20 C02F3/301 Y02W10/15

European: C02F3/20 C02F3/22C C02F3/30B



Family:

Publication number	Publication date	Application number	Application date
EP0849229 A1	19980624	EP19960203575	19961217

Priority:

EP19960203575 19961217

Probable Assignee: BIOTHANE SYSTEMS INT BV

Assignee(s): (std): BIOTHANE SYSTEMS INT BV

Assignee(s): BIOTHANE SYSTEMS INTERNATIONAL B V

Inventor(s): (std): VERSPRILLE ABRAHAM IZAAK ; KOOT DIRK JAN

Designated states: FI

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
EP0849229 A1	19980624	LSPB	+	published / reissued	
EP0849229 A1	19990310	LSFE	+AKX	DESIGNATION FEES PAID	
EP0849229 A1	19991006	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	EFFECTIVE DATE : 19981229

Title: FLOW CHANNEL CAPILLARY STRUCTURE OF WASTEWATER **PURIFICATION** APPARATUS WITH SOIL MULCH TYPE

Abstract: Source: KR200139705Y **Machine translation:** The subject innovation is ground using natural ecosystems and soil, soil microorganisms living animal manure and then to purify the waste water, such as job drainage method and apparatus, and more particularly to a trench structure by the capillary in the flow path to be processed by the final effluent water quality and at the same time maintaining the reference value allows a portion of the treated water to prevent the reduction of the groundwater and groundwater depletion and zero amount required for the growth of plants in a soil water supplied to the flow path of the sheathed sewage **purification** apparatus relates to a capillary structure. Primary treatment apparatus 10 **anaerobic** corruption and aerobic to join, contact is filled to a fractional secondary processing unit 20, the flow path of the tertiary treatment apparatus 30 and capillary and the cecum style wheel (45) configured as a 4-processing apparatus cancer girder 40 comprises a Sat style septic system, the third processing unit 30 of the hollow portion (31b) of the capillary is free flow path has a plurality of through holes formed in the hollow portion (31a) is composed of a plurality of is connected to the folded state can be its length to infinity and the bottom partition wall 33 is formed in a zigzag pattern (trench structure and the upper cover (34) to the inner surface of the corrugated pipe (35), characterized in that the attachment structure for the contact.

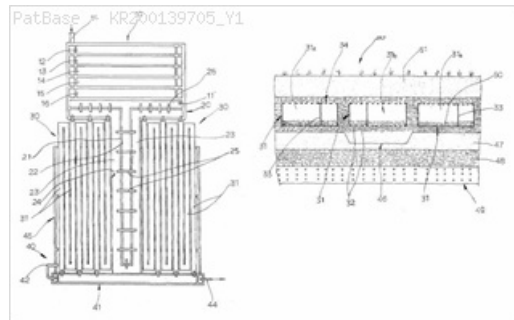
Classifications:

International (IPC 8-9): C02F3/00 C02F3/30 (Advanced/Invention);

C02F3/00 C02F3/30 (Advanced/Non-invention);

C02F3/00 C02F3/30 (Core/Invention)

International (IPC 1-7): C02F3/00 C02F3/30



Family:

Publication number	Publication date	Application number	Application date
KR0139705 Y1	19990401	KR19960023556U	19960802
KR19960037420 U	19961216	KR19960023556U	19960802
KR200139705 Y1	19990401	KR19960023556U	19960802

Priority:

KR19960023556U 19960802

Probable Assignee:

PARK YANG GYUN

Assignee(s): (std):

PARK YANG GYUN

Inventor(s): (std):

PARK YANG GYUN

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
KR0139705 Y1	19990401	LSGT	+	granted / extensions (spc, cpc, pte)	
KR0139705 Y1	19960802	LSSES	A201	REQUEST FOR EXAMINATION	
KR0139705 Y1	19980914	LSGT	+E701	DECISION TO GRANT OR REGISTRATION OF PATENT RIGHT	
KR0139705 Y1	20101215	LSFE	FPAY	ANNUAL FEE PAYMENT	PAYMENT DATE : 20101215 YEAR OF FEE PAYMENT : 13
KR0139705 Y1	20110803	LSLE	-EXPY	EXPIRATION OF TERM	
KR0139705 Y1	20060802	PEXP		Calculated Patent Term Expiry	
KR19960037420 U	19961216	LSPB	+	published / reissued	
KR200139705 Y1	19990401	LSGT	+	granted / extensions (spc, cpc, pte)	
KR200139705 Y1	20060802	PEXP		Calculated Patent Term Expiry	

Title: CEPA BACTERIANA BACILLUS Y PROCEDIMIENTO PARA LA ELIMINACION DE COMPUESTOS COLOREADOS Y MATERIA ORGANICA EN AGUAS RESIDUALES

Abstract: Source: ES2674338B [ES] La presente invencion comprende una cepa bacteriana designada como Bacillus aryabhattai DC100 (CECT 9226), para la eliminacion de compuestos coloreados y materia organica en aguas residuales y/o efluentes. La invencion tambien se refiere a un procedimiento que comprende las siguientes etapas: produccion del inoculo de la cepa Bacillus aryabhattai DC100 (CECT 9226), caracterizacion y en caso de ser necesario suplementacion del agua residual y/o efluente a tratar, y finalmente el tratamiento biologica del mismo por la cepa bacteriana obtenida previamente. Este procedimiento permite la decoloracion completa de compuestos coloreados preferentemente tipo trifenilmetano e indigotina, asi como reducciones de la materia organica disuelta o en suspension presente en aguas y/o efluentes de industrias que llevan a cabo algun proceso de tincion o de coloracion, como son la textil, papelera, cosmetica, farmaceutica y/o alimentarias.

Classifications:

International (IPC 8-9): C02F3/34 C12N1/20 (Advanced/Invention)

CPC: C02F3/34 C12N1/20

PatBase - ES2674338_AA

ES 2 674 338 A1

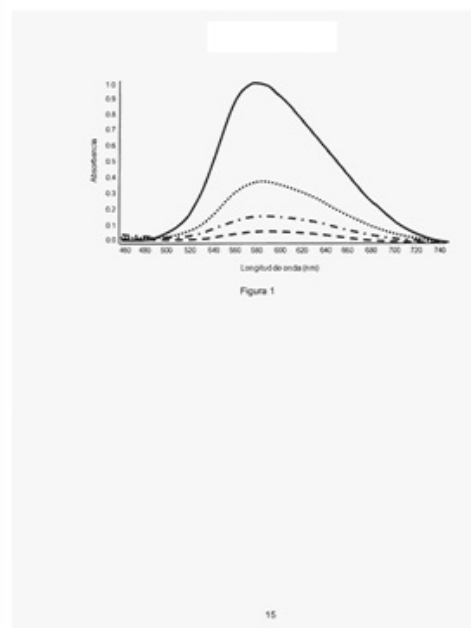


Figura 1

15

Family:

Publication number	Publication date	Application number	Application date
■ ES2674338 AA	20180628	ES20160001101	20161228
■ ES2674338 BB	20181115	ES20160001101	20161228

Priority:

ES20160001101 20161228

Probable Assignee: UNIV VIGO

Assignee(s): (std): UNIV DE VIGO ; UNIV VIGO

Assignee(s): UNIVERSIDADE DE VIGO

Inventor(s): (std): PEREZ PAZ ALICIA ; DOMINGUEZ GONZALEZ JOSE MANUEL

Inventor(s): ALICIA PEREZ PAZ ; JOSE MANUEL DOMINGUEZ GONZALEZ

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
ES2674338 AA	20180628	LSPB	+	published / reissued	
ES2674338 AA	20181115	LSGT	+FG2A	DEFINITIVE PROTECTION	REF DOCUMENT NUMBER : 2674338 COUNTRY OF REF DOCUMENT : ES KIND CODE OF REF DOCUMENT : B2 DESIGNATED STATE(S) : EFFECTIVE DATE : 20181115
ES2674338 BB	20181115	LSGT	+	granted / extensions (spc, cpc, pte)	
ES2674338 BB	20361228	PEXP		Calculated Patent Term Expiry	

Title: WATER TREATMENT PROCESS

Abstract: A water treatment process comprising: (a) providing bioactive material in waste water, the bioactive material containing microorganisms capable of removing one or more impurities from the waste water, wherein at least 40 percent by volume of said bioactive material in said waste water is in granular form; and (b) passing a portion of the waste water through a membrane separator, whereby the membrane separator prevents the bioactive material from passing therethrough.

Classifications:

International (IPC 8-9): B01D61/14 C02F1/44 C02F3/30 C02F C02F103/00 C02F3/00 C02F3/06 C02F3/12 (Advanced/Invention); C02F103/00 (Advanced/Non-invention);

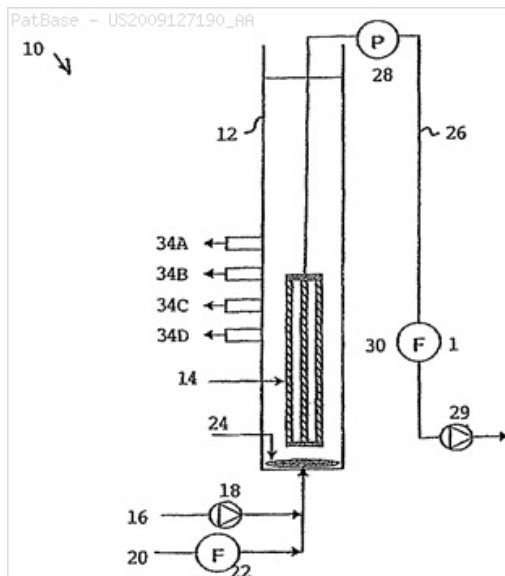
C02F3/06 (Core/Invention);

C02F (Subclass/Invention)

CPC: Y02W10/15 C02F3/1263 C02F3/1273 C02F3/301 C02F3/302 C02F3/348

European: C02F3/12N8 C02F3/12N9B C02F3/34Z M02F3/30B M02F3/30D

US: 210/150 210/151 210/189 210/266 210/266S 210/616 210/617 210/620 210/622 210/629

**Family:**

Publication number	Publication date	Application number	Application date
AT463467 E	20100415	AT20050757864T	20050706
AU2005334124 AA	20070111	AU20050334124	20050706
AU2005334124 AH	20090618	AU20050334124	20050706
AU2005334124 BB	20110512	AU20050334124	20050706
CN101155760 A	20080402	CN200580048362	20050706
CN101155760 B	20130403	CN200580048362	20050706
DE602005020521 D1	20100520	DE200560020521T	20050706
EP1899273 A1	20080319	EP20050757864	20050706
EP1899273 A4	20080903	EP20050757864	20050706
EP1899273 B1	20100407	EP20050757864	20050706
HK1110064 A1	20100910	HK20080104406	20080421
HK1110064 A1	20080704	HK20080104406	20080421
HK1110064 A3	20080704	HK20080104406	20080421
HK1110064 B	20100910	HK20080104406	20080421
MY154628 A	20150715	MY20060003029	20060627
TW200718656 A	20070516	TW20060123134	20060627
US2009127190 AA	20090521	US20050994829	20050706
US7875181 BB	20110125	US20050994829	20050706
WO07004987 A1	20070111	WO2005SG00222	20050706

Priority:

WO2005SG00222 20050706

Probable Assignee: GLOWTEC BIO PTE LTD

Assignee(s): (std): GLAUS TECHNOLOGY BIOLOG PRIVAT ; GLAUS TECHNOLOGY BIOLOG PRIVATE CO LTD ; GLOTEC BIO PTE LTD ; GLOWTEC BIO PTE LTD ; GLOWTECH BIO PTE LTD ; ONG TZE GUAN ; TAY JOO HWA ; TAY TIONG LEE STEPHEN

Assignee(s): GLAUS TECHNOLOGY BIOLOGICAL PRIVATE CO ; GLAUS TECHNOLOGY BIOLOGICAL PRIVATE CO LTD

Inventor(s): (std): ONG TZE GUAN ; TAY TIONG LEE STEPHEN ; TAY JOO HWA ; TAY STEPHEN TIONG LEE ; HWA TAY JOO ; TZEGUAN ONG ; ONG TZEGUAN

Inventor(s): TIONG LEE STEPHEN TAY ; TZE GUAN ONG ; JOO HWA TAY ; HENG LEGAL REPRESENTATIVE LIM TEOW ; STEPHEN TIONG LEE TAY

Agent(s): SPRUSON AND FERGUSON; MASCHIO ANTONIO ET AL; HARDING CHARLES THOMAS; ELLA CHEONG HONG KONG LTD; MORRISON AND FOERSTER LLP

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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
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AT463467 E	20100415	LSGT	+	granted /	
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					extensions (spc, cpc, pte)
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AT463467 E	20250706	PEXP		Calculated Patent Term Expiry	
AU2005334124 AA	20070111	LSPB	+	published / reissued	
AU2005334124 BB	20110512	LSGT	+	granted / extensions (spc, cpc, pte)	
AU2005334124 BB	20110908	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU2005334124 BB	20150129	LSLE	-MK14	PATENT CEASED SECTION 143(A) (ANNUAL FEES NOT PAID) OR EXPIRED	
AU2005334124 BB	20250706	PEXP		Calculated Patent Term Expiry	
CN101155760 A	20080402	LSPB	+	published / reissued	
CN101155760 A	20080402	LSPB	+C06	PUBLICATION	
CN101155760 A	20111214	LSAS	ASS	SUCCESSION OR ASSIGNMENT OF PATENT RIGHT	PARTYTYPE : OWNER OWNER : BEIJING XINYUANYIKE ENVIRONMENTAL PROTECTION TECHN OLDPARTY : FORMER OWNER: GLAUS TECHNOLOGY BIOLOGICAL PRIVATE CO., LTD. EFFECTIVE DATE : 20111102
CN101155760 A	20111214	LSAS	C41	TRANSFER OF PATENT APPLICATION OR PATENT RIGHT OR UTILITY MODEL	
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CN101155760 B	20250706	PEXP		Calculated Patent Term Expiry	
DE602005020521 D1	20110428	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DE602005020521 D1	20150203	LSDW	-R119	APPLICATION DEEMED WITHDRAWN, OR IP RIGHT LAPSED, DUE TO NON-PAYMENT OF RENEWAL FEE	
EP1899273 A1	20080319	LSPB	+	published / reissued	
EP1899273 A1	20080319	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20070914
EP1899273 A4	20080903	LSES	+A4	SUPPLEMENTARY SEARCH REPORT DRAWN UP AND DESPATCHED	EFFECTIVE DATE : 20080804
EP1899273 A4	20081231	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20081204
EP1899273 B1	20100407	LSGT	+	granted / extensions (spc, cpc, pte)	
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EP1899273 B1	20100415	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP

EP1899273 B1	20100512	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : FG4D
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EP1899273 B1	20101029	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20100718
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EP1899273 B1	20101029	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20100407
EP1899273 B1	20101130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20100407
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EP1899273 B1	20110316	LSGT	+26N	NO OPPOSITION FILED	EFFECTIVE DATE : 20110110
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EP1899273 B1	20250706	PEXP		Calculated Patent Term Expiry	
HK1110064 A1	20080704	LSPB	+	published / reissued	
HK1110064 A1	20100910	LSPB	+	published / reissued	
HK1110064 A1	20280421	PEXP		Calculated Patent Term Expiry	
HK1110064 A1	20280421	PEXP		Calculated Patent	

				Term Expiry	
HK1110064 A3	20080704	LSPB	+	published / reissued	
HK1110064 B	20100910	LSGT	+	granted / extensions (spc, cpc, pte)	
HK1110064 B	20280421	PEXP		Calculated Patent Term Expiry	
MY154628 A	20150715	LSGT	+	granted / extensions (spc, cpc, pte)	
MY154628 A	20260627	PEXP		Calculated Patent Term Expiry	
TW200718656 A	20070516	LSPB	+	published / reissued	
US2009127190 AA	20090521	LSPB	+	published / reissued	
US2009127190 AA	20110105	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US7875181 BB	20110125	LSGT	+	granted / extensions (spc, cpc, pte)	
US7875181 BB	20081031	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : GLOWTEC BIO PTE LTD, SINGAPORE OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:ONG, TZE GUAN; TAY, JOO HWA; TAY, STEPHEN TIONG LEE; REEL/FRAME:021771/0437 EFFECTIVE DATE : 20050706
US7875181 BB	20110105	LSGT	PAT1	Patented Case	
US7875181 BB	20140625	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US7875181 BB	20180713	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US7875181 BB	20260501	PEXP		Calculated Patent Term Expiry (PTA 299 days)	
WO07004987 A1	20070111	LSPB	+	published / reissued	
WO07004987 A1	20050706	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 200580048362.7 COUNTRY OF REF DOCUMENT : CN
WO07004987 A1	20070815	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2005334124 COUNTRY OF REF DOCUMENT : AU
WO07004987 A1	20070906	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2005334124 COUNTRY OF REF DOCUMENT : AU DATE OF REF DOCUMENT : 20050706 KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO07004987 A1	20070906	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 2005334124 COUNTRY OF REF DOCUMENT : AU
WO07004987 A1	20070914	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2005757864 COUNTRY OF REF DOCUMENT : EP
WO07004987 A1	20080108	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO07004987 A1	20081031	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 11994829 COUNTRY OF REF DOCUMENT : US

Title: ANOXIC BIOTREATMENT CELL

Abstract: A biotreatment cell for removing nitrate from water is provided comprising a closed tank having an inlet port and an outlet port, and containing therein particulate matter which forms a fixed porous bed on which microorganisms form a biofilm. Water travels from the inlet to the outlet thereby passing through the bed. The particulate matter has a density and size sufficient to form a fixed bed during the nitrate removal process and provides a bed having a porosity of about 0.25 to 0.95, preferably about 0.45. The bed material is preferably geochemically stable natural rock crushed to promote a specific size distribution. A method and additive system to maintain the nutrient phosphate level at a controlled effluent concentration are also provided for efficiently removing nitrate from water using the biotreatment cell of the invention.

Classifications:

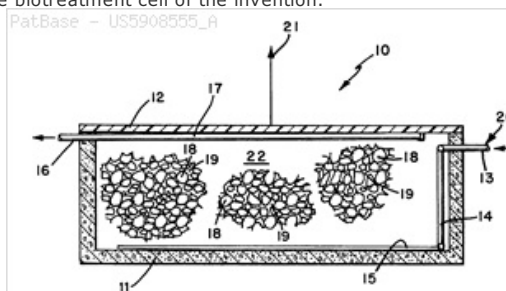
International (IPC 8-9): C02F3/10 C02F3/28 (Advanced/Invention); C02F3/28 (Core/Invention)

International (IPC 1-7): C02F3/06 C02F3/10 C02F3/28

CPC: Y10S210/903 C02F3/2806

European: C02F3/28C

US: 210/610 210/614 210/617 210/903



Family:

Publication number	Publication date	Application number	Application date
CA2245719 AA	19990228	CA19982245719	19980826
US5908555 A	19990601	US19970921137	19970829

Priority:

US19970921137 19970829 CA19982245719 19980826

Probable Assignee: ASARCO INC

Assignee(s): (std): HYDROMETRICS INC

Assignee(s): REINSEL MARK A ; ASARCO INC ; BOTZ MAXWELL K

Inventor(s): (std): REINSEL MARK A ; BOTZ MAXWELL K

Agent(s): RIDOUT AND MAYBEE LLP

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CA2245719 AA	19990228	LSPB	+	published / reissued	
CA2245719 AA	19980826	LSSES	+EEER	EXAMINATION REQUEST	
CA2245719 AA	20040514	LSLE	-FZDE	DEAD	
US5908555 A	19990601	LSGT	+	granted / extensions (spc, cpc, pte)	
US5908555 A	19980206	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HYDROMETRICS, INC., MONTANA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:REINSEL, MARK A.; BOTZ, MAXWELL K.; REEL/FRAME:008969/0854 EFFECTIVE DATE : 19980130
US5908555 A	19991005	LSRE	CC	CERTIFICATE OF CORRECTION	
US5908555 A	20020723	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US5908555 A	20021008	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ASARCO INCORPORATED, ARIZONA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:HYDROMETRICS, INC.; REEL/FRAME:013362/0197 EFFECTIVE DATE : 20020628
US5908555 A	20070601	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US5908555 A	20070705	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	

US5908555 A	20070705	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	TEXT : PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362
US5908555 A	20070724	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 20070601
US5908555 A	20170829	PEXP		Calculated Patent Term Expiry	

Title: PROCESS FOR THE **PURIFICATION** OF AN AQUEOUS STREAM COMING FROM THE FISCHER-TROPSCH REACTION

Abstract: Process for the **purification** of an aqueous stream coming from the Fischer-Tropsch reaction comprising a treatment with at least one inorganic base, an evaporation treatment, a distillation and/or stripping treatment and a treatment with at least one organic base. Said process allows at least a part of the aqueous stream coming from the Fischer-Tropsch reaction to be used as process water in the production plant of synthesis gas subsequently sent to a Fischer-Tropsch plant for the production of hydrocarbons.

Classifications:

International (IPC 8-9): C02F C02F1/04 C02F1/06 C02F1/66

C02F9/00 C02F9/08 (Advanced/Invention);

C02F1/44 C02F101/32 C02F103/36 C02F3/02

C02F3/28 (Advanced/Non-invention);

C02F1/04 C02F1/66 C02F9/00 (Core/Invention);

C02F (Subclass/Invention)

International (IPC 1-7): C02F1/04 C02F1/66 C02F9/00

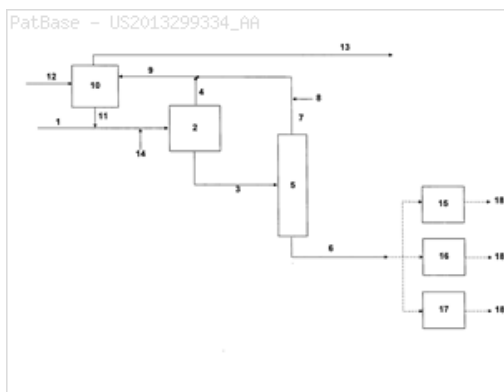
CPC: C02F1/04 C02F1/048 C02F1/441 C02F1/66 C02F3/02

C02F3/286 C02F9/00 C02F2101/32 C02F2103/36 Y02W10/15

European: C02F9/00 M02F1/04 M02F1/04Z M02F1/44B M02F1/66

M02F101/32 M02F103/36 M02F3/02 M02F3/28S

US: 1/1 203/10



Family:

Publication number	Publication date	Application number	Application date
BRPI1007508 A2	20161025	BR2010PI07508	20100128
BRPI1007508 B1	20190903	BR2010PI07508	20100128
CN102369163 A	20120307	CN201080010124	20100128
CN102369163 B	20130925	CN201080010124	20100128
DE602010012170 D1	20140130	DE201060012170T	20100128
EP2391583 A1	20111207	EP20100702071	20100128
EP2391583 B1	20131204	EP20100702071	20100128
IN05949CN2011 A	20121012	IN2011CN05949	20110818
IN294159 B	20180316	IN2011CN05949	20110818
IT1392803 B1	20120323	IT2009MI00117	20090130
ITMI20090117 A1	20100731	IT2009MI00117	20090130
RU2011134013 A	20130310	RU20110134013	20100128
RU2507163 C2	20140220	RU20110134013	20100128
US2013299334 AA	20131114	US20100147119	20100128
US9067806 BB	20150630	US20100147119	20100128
WO10086182 A1	20100805	WO2010EP00569	20100128
ZA201105613 A	20121031	ZA20110005613	20100128

Priority:

IT2009MI00117 20090130 EP20100702071 20100128 WO2010EP00569 20100128

Probable Assignee: ENI SPA

Assignee(s): (std): ENI SPA ; PEROTTI INES ; PIROTTI OLIVIERO ; PISANI FRANCA ; PIZZOCCHI PALMA ; TONANI SERAFINO ; CARNELLI LINO

Assignee(s): ENI S P A

Inventor(s): (std): LOCATELLI DECEASED LINO ; BUA LETIZIA ; LINO LOCATELLI ; LINO CARNELLI ; LOCATELLI LINO ; CARNELLI LINO

Inventor(s): CARNELL LINO

Agent(s): COLETTI RAIMONDO; MAIWALD PATENTANWALTS GMBH; OBLON MCCLELLAND MAIER AND NEUSTADT LLP; DE GREGORI ANTONELLA

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 TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
BRPI1007508 A2	20190730	LSGT	B09A	DECISION: INTENTION TO GRANT	
BRPI1007508 B1	20190903	LSGT	+B16A	PATENT OR CERTIFICATE OF ADDITION OF INVENTION GRANTED	TEXT : PRAZO DE VALIDADE: 20 (VINTE) ANOS CONTADOS A PARTIR DE 28/01/2010, OBSERVADAS AS CONDICÖES LEGAIS. (CO) 20 (VINTE) ANOS CONTADOS A PARTIR DE 28/01/2010, OBSERVADAS AS CONDICÖES LEGAIS
BRPI1007508 B1	20300128	PEXP		Calculated Patent Term	

Expiry					
CN102369163 A	20120307	LSPB	+	published / reissued	
CN102369163 A	20120307	LSPB	+C06	PUBLICATION	
CN102369163 B	20130925	LSGT	+	granted / extensions (spc, cpc, pte)	
CN102369163 B	20130925	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN102369163 B	20300128	PEXP		Calculated Patent Term Expiry	
EP2391583 A1	20111207	LSPB	+	published / reissued	
EP2391583 A1	20111207	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20110727
EP2391583 A1	20130724	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	EFFECTIVE DATE : 20130624
EP2391583 A1	20140530	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : HR NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20131204
EP2391583 A1	20140829	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : EE NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20131204
EP2391583 A1	20140829	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IS NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140404
EP2391583 A1	20140930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LU NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140128
EP2391583 A1	20160429	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT PAYMENT DATE : 20160122 YEAR OF FEE PAYMENT : 7
EP2391583 A1	20160531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20160126 YEAR OF FEE PAYMENT : 7
EP2391583 A1	20160531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FI PAYMENT DATE : 20160127 YEAR OF FEE PAYMENT : 7
EP2391583 B1	20131204	LSGT	+	granted / extensions (spc, cpc, pte)	
EP2391583 B1	20131204	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : FG4D
EP2391583 B1	20131213	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP
EP2391583 B1	20140115	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : FG4D
EP2391583 B1	20140115	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : REF

					REF DOCUMENT NUMBER : 643465 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20140115
EP2391583 B1	20140130	LSPB	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R096 REF DOCUMENT NUMBER : 602010012170 COUNTRY OF REF DOCUMENT : DE EFFECTIVE DATE : 20140130
EP2391583 B1	20140326	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : NL REF LEGAL EVENT CODE : VDEP EFFECTIVE DATE : 20131204
EP2391583 B1	20140415	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : MK05 REF DOCUMENT NUMBER : 643465 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20131204
EP2391583 B1	20140430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20131204
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EP2391583 B1	20140430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20131204
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EP2391583 B1	20140526	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : LT REF LEGAL EVENT CODE : MG4D
EP2391583 B1	20140530	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LV NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20131204
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				INFORMATION FROM NATIONAL OFFICE TO EPO]	WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20131204
EP2391583 B1	20140731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IS NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20140404
EP2391583 B1	20140731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20131204
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EP2391583 B1	20140801	LSDW	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R119 REF DOCUMENT NUMBER : 602010012170 COUNTRY OF REF DOCUMENT : DE
EP2391583 B1	20140829	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SK NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20131204
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EP2391583 B1	20140829	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION	COUNTRY OF REF DOCUMENT : CZ NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-

				FROM NATIONAL OFFICE TO EPO]	LIMIT LAPSED DATE : 20131204
EP2391583 B1	20140829	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : PL
EP2391583 B1	20140930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MC NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20131204
EP2391583 B1	20141030	LSDW	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R119 REF DOCUMENT NUMBER : 602010012170 COUNTRY OF REF DOCUMENT : DE EFFECTIVE DATE : 20140801
EP2391583 B1	20141031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DK NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20131204
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EP2391583 B1	20141031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20140131
EP2391583 B1	20141031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20140131
EP2391583 B1	20141105	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : MM4A
EP2391583 B1	20141112	LSGT	+26N	NO OPPOSITION FILED	EFFECTIVE DATE : 20140905
EP2391583 B1	20141126	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON- PAYMENT OF RENEWAL FEE	REF COUNTRY CODE : EP EFFECTIVE DATE : 20140304
EP2391583 B1	20150130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20140128
EP2391583 B1	20150130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20140304
EP2391583 B1	20150227	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20131204
EP2391583 B1	20160126	LSFE	REG	REFERENCE TO A NATIONAL CODE	COUNTRY OF REF DOCUMENT : FR REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 7

EP2391583 B1	20160229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20131204
EP2391583 B1	20160429	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SM NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20131204
EP2391583 B1	20160630	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BG NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20131204
EP2391583 B1	20160630	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140305
EP2391583 B1	20160729	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : TR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20131204
EP2391583 B1	20160729	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : HU NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT; INVALID AB INITIO LAPSED DATE : 20100128
EP2391583 B1	20170125	LSFE	REG	REFERENCE TO A NATIONAL CODE	COUNTRY OF REF DOCUMENT : FR REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 8
EP2391583 B1	20170428	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FI PAYMENT DATE : 20170127 YEAR OF FEE PAYMENT : 8
EP2391583 B1	20170428	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20170125 YEAR OF FEE PAYMENT : 8
EP2391583 B1	20170630	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT PAYMENT DATE : 20170124 YEAR OF FEE PAYMENT : 8
EP2391583 B1	20180125	LSFE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 9
EP2391583 B1	20180430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FI PAYMENT DATE : 20180129 YEAR OF FEE PAYMENT : 9
EP2391583 B1	20180531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT PAYMENT DATE : 20180122 YEAR OF FEE PAYMENT : 9
EP2391583 B1	20180531	LSFE	+PGFP	ANNUAL FEE PAID	COUNTRY OF REF DOCUMENT : FR

				TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	PAYMENT DATE : 20180125 YEAR OF FEE PAYMENT : 9
EP2391583 B1	20180629	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MK NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20131204
EP2391583 B1	20190430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FI PAYMENT DATE : 20190129 YEAR OF FEE PAYMENT : 10
EP2391583 B1	20190430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT PAYMENT DATE : 20190123 YEAR OF FEE PAYMENT : 10
EP2391583 B1	20190430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20190125 YEAR OF FEE PAYMENT : 10
EP2391583 B1	20300128	PEXP		Calculated Patent Term Expiry	
IN05949CN2011 A	20121012	LSPB	+	published / reissued	
IN294159 B	20180316	LSGT	+	granted / extensions (spc, cpc, pte)	
IN294159 B	20310818	PEXP		Calculated Patent Term Expiry	
IT1392803 B1	20120323	LSGT	+	granted / extensions (spc, cpc, pte)	
IT1392803 B1	20290130	PEXP		Calculated Patent Term Expiry	
ITMI20090117 A1	20100731	LSPB	+	published / reissued	
RU2011134013 A	20130310	LSPB	+	published / reissued	
RU2507163 C2	20140220	LSGT	+	granted / extensions (spc, cpc, pte)	
RU2507163 C2	20300128	PEXP		Calculated Patent Term Expiry	
US2013299334 AA	20131114	LSPB	+	published / reissued	
US2013299334 AA	20150313	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ENI S.P.A., ITALY OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR: CARNELLI, LINO; REEL/FRAME:035159/0312 EFFECTIVE DATE : 20120704
US2013299334 AA	20150610	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US9067806 BB	20150630	LSGT	+	granted / extensions (spc, cpc, pte)	
US9067806 BB	20150610	LSGT	PAT1	Patented Case	
US9067806 BB	20151105	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ENI S.P.A., ITALY OLDPARTY : TRANSFER OF RIGHTS; ASSIGNOR: LOCATELLI, LINO; REEL/FRAME:037055/0122 EFFECTIVE DATE : 20080911
US9067806 BB	20181231	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US9067806 BB	20321027	PEXP		Calculated	

				Patent Term Expiry (PTA 1003 days)		
WO10086182 A1	20100805	LSPB	+	published / reissued		
WO10086182 A1	20100128	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 201080010124.8	COUNTRY OF REF DOCUMENT : CN
WO10086182 A1	20110727	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2010702071	COUNTRY OF REF DOCUMENT : EP
WO10086182 A1	20110801	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE	
WO10086182 A1	20110818	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 5949/CHENP/2011	COUNTRY OF REF DOCUMENT : IN
WO10086182 A1	20110830	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2011134013	COUNTRY OF REF DOCUMENT : RU
WO10086182 A1	20130329	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 13147119	COUNTRY OF REF DOCUMENT : US
WO10086182 A1	20161025	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : PI1007508	COUNTRY OF REF DOCUMENT : BR KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) : EFFECTIVE DATE : 20110729
ZA201105613 A	20121031	LSGT	+	granted / extensions (spc, cpc, pte)		
ZA201105613 A	20310728	PEXP		Calculated Patent Term Expiry		

Title: CONTINUOUS BIOLOGICAL **PURIFICATION** AND RE-USE OF WASTE WATER CONTAINING SURFACTANT, E.G. FROM LAUNDRY, INVOLVES ADSORBING IMPURITIES AND REGENERATING ADSORBENT SUSPENSION IN BIOREACTOR

Abstract: In continuous biological **purification** and re-use of waste water containing surfactant by contact with an adsorbent to remove the impurities, a suspension of adsorbent charged with impurities is passed to a bioreactor operating under aerobic and/or **anaerobic** conditions with a mixed biozoonose capable of decomposing the adsorbed surfactants and other impurities, then the adsorbent is recycled to the process. An Independent claim is also included for the equipment used.

Classifications:

International (IPC 8-9): C02F1/28 C02F3/12

C02F9/00 (Advanced/Invention);

C02F1/28 C02F3/12 C02F9/00 (Core/Invention)

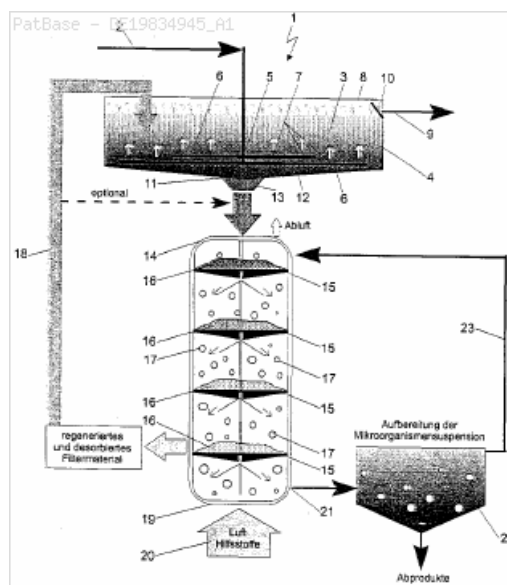
International (IPC 1-7): C02F1/28 C02F3/30

CPC: C02F3/085 C02F1/28 C02F1/281 C02F1/283 C02F1/285

C02F1/286 C02F9/00 C02F2101/301 C02F2101/303 Y02W10/15

European: C02F1/28 C02F3/08D C02F9/00 M02F1/28B M02F1/28D

M02F1/28F M02F1/28H M02F101/30B M02F101/30D



Family:

Publication number	Publication date	Application number	Application date
DE19834945 A1	20000217	DE19981034945	19980803

Priority:

DE19981034945 19980803

Probable Assignee: BUCK WERKE GMBH AND CO I K

Assignee(s): (std): BUCK WERKE GMBH AND CO I K

Assignee(s): BUCK WERKE GMBH AND CO IK

Inventor(s): (std): LERCHE ELKE ; KNEIST KARIN ; JACOBI DETLEF ; HILLEMANN DORIS

Legal status (INPADOC)

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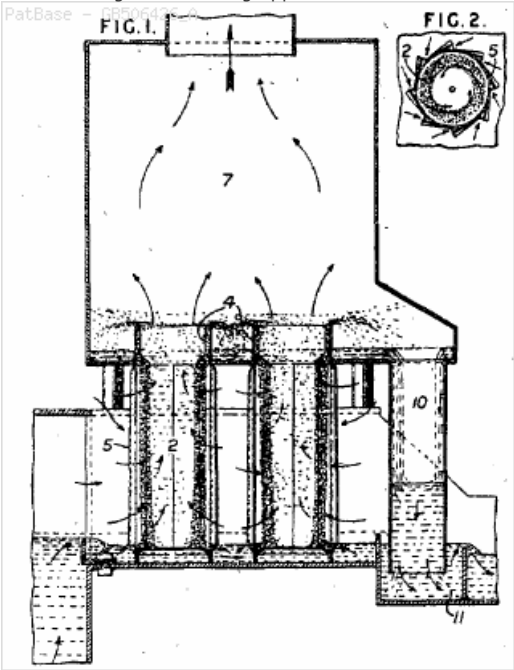
Patent	Date recorded	Event group	Code	Event	Details
DE19834945 A1	20000217	LSPB	+	published / reissued	
DE19834945 A1	20000217	LSSES	+OP8	REQUEST FOR EXAMINATION AS TO PARAGRAPH 44 PATENT LAW	
DE19834945 A1	20010906	LSLE	-8139	DISPOSAL/NON-PAYMENT OF THE ANNUAL FEE	

Title: IMPROVEMENTS IN AND RELATING TO METHODS OF AND APPARATUS FOR THE TREATMENT OF ORGANICALLY POLLUTED LIQUIDS, SUCH AS SEWAGE

Abstract: 506,426. Treating sewage, and foul waters. HAWLEY, C. G. Oct. 26, 1937, No. 29199. [Class 111] [Also in Group III] Apparatus for aerating sewage or other polluted liquid comprises a number of units 2, Figs. 1 and 2, the walls of which have slots and blades 5, which together form tangential nozzles, the upper ends 4 of the walls being imperforate and extending into a chamber 7. When suction is applied to the chamber 7, air drawn into the elements with a whirling motion and the liquid under treatment, which surrounds the lower ends of the elements, is lifted within the elements in a finely divided state. The liquid, with air in suspension, is collected centrifugally on the walls 4 and passes over on to the bottom of the chamber 7, from which it is discharged through tubes 10 and a liquid seal 11. As shown in Fig. 1 the elements are closed at the base and the liquid enters at the lower ends of the walls. In a modified form of apparatus the elements are surrounded by a casing to which air is supplied under pressure, and the base of each element has a central aperture for the entry of the liquid. Ultraviolet lamps may be arranged axially within the elements. Aerating apparatus as described may be arranged at both the inlet and outlet of a settling-tank in plant as described in Specification 498,814, the air drawn from the chambers 7 being passed to the incinerator in which the solid matters are destroyed. In such plant the aerating apparatus is used to treat liquid which has been passed through a rotary strainer as described in Specification 499,021 and the float which governs the speed of the strainer may control also a motor driving a fan which draws air through the aerating apparatus.

Classifications:

International (IPC 8-9): B01F3/04 C02F1/72 C02F3/20 C02F3/24 (Advanced/Invention);
B01F3/04 C02F1/72 C02F3/20 C02F3/24 (Core/Invention)
International (IPC 1-7): C02C1/06 E03F5/14
CPC: Y02W10/15 C02F3/20 B01F3/0473 C02F1/72 C02F3/24
European: B01F3/04C6 C02F1/72 C02F3/20 C02F3/24



Family:

Publication number	Publication date	Application number	Application date
GB506426 A	19390526	GB19370029199	19371026

Priority:

GB19370029199 19371026

Probable Assignee:

CHARLES GILBERT HAWLEY

Assignee(s): (std):

CHARLES GILBERT HAWLEY

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
GB506426 A	19390526	LSGT	+	granted / extensions (spc, cpc, pte)	
GB506426 A	19571026	PEXP		Calculated Patent Term Expiry	

Title: MULTI-STORIED ECOLOGICAL SYSTEM FOR CULTURING AND SEQUENTIAL CROPPING UNDER TEMPERATURE CONTROL

Abstract: The present invention is related to such a technical measure of energy converting that transfers the green energy flow into the green material flow in a way of high rate, speed and quality as well as low cost, especially to an multi-storied ecological system for culturing and sequential cropping under the temperature control. The system, which makes the breeding to combined with the soilless culturing, will not subjected to the negative effect of the nature condition. It provides a new technology of high- temperature **anaerobic** treatment to dung and conversion of marsh gas, residue and liquid with low cost by the means of overhead time-control agitating and solar energy complemented with biological energy. This new technology can use mash gas to implement air conditioning of double-action, which not only forms an super multi-storied environment for culturing and sequential cropping that can culture fowls, domestic animals, shrimps, crabs, fruits, vegetables as well as flowers, but also eliminates underdevelopment and hindrance of their growth in winter. Furthermore, it changes an older mode of recycling dung in a low rate into a new transforming means with high self-**purification** an additional value by the aid of overhead treatment device and one-step granulator making use of mash-gas. First, it uses a elevating system for culturing fruits, vegetables as well as flowers to feed mash liquid of organic substance, amino acid and metal ion to them. Then, it provides the fish, shrimp crab, turtle and so on with feed and water. As the result, the problem that can produce a large amount of mash liquid but cannot treat it on the spot is solved dramatically.

Classifications:

International (IPC 8-9): A01G31/00 A01G9/00 A01K1/00

A01K31/00 (Advanced/Invention);

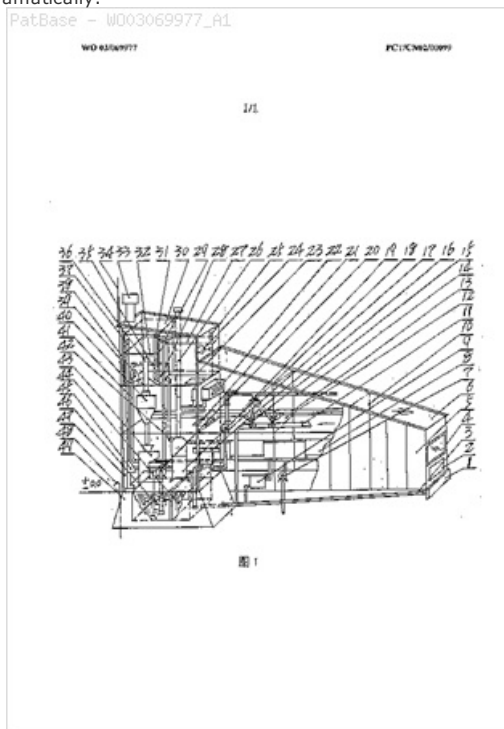
A01G31/00 A01G9/00 A01K1/00 A01K31/00 (Core/Invention)

International (IPC 1-7): A01G9/00 A01G9/24 A01K1/00 A01K31/00

C02F11/04 C02F3/28

CPC: Y02P60/216 A01G31/00

European: A01G31/00



Family:

Publication number	Publication date	Application number	Application date
AU2002237165 AA	20030909	AU2002237165	20020220
CN1337146 A	20020227	CN20001021475	20000725
WO03069977 A1	20030828	WO2002CN00099	20020220

Priority:

CN20001021475 20000725 WO2002CN00099 20020220

Probable Assignee: LI JINXIAN

Assignee(s): (std): LI JINXIAN ; LIU BINGQIANG ; LIU GANG

Inventor(s): (std): LI JINXIAN ; LIU BINGQIANG ; LIU GANG

Inventor(s): JINXIAN LI ; GANG LIU ; BINGQIANG LIU

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 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 MA MC MD MG MK ML MN MR MW MX MZ NE NL NO NZ OM PH PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU2002237165 AA	20030909	LSPB	+	published / reissued	
AU2002237165 AA	20041104	LSLE	-MK6	APPLICATION LAPSED SECTION 142(2) (F)/REG. 8.3(3) - PCT APPLIC. NOT ENTERING NATIONAL PHASE	
CN1337146 A	20020227	LSPB	+	published / reissued	
CN1337146 A	20020227	LSPB	+C06	PUBLICATION	
CN1337146 A	20051102	LSDW	-C02	DEEMED WITHDRAWAL OF PATENT APPLICATION AFTER PUBLICATION (PATENT LAW 2001)	

WO03069977 A1	20030828	LSPB	+	published / reissued	
WO03069977 A1	20050706	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF COUNTRY CODE : WO
WO03069977 A1	20060616	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : JP
WO03069977 A1	20060616	LSWD	-WWW	WIPO INFORMATION: WITHDRAWN IN NATIONAL OFFICE	TEXT : JP

Title: PURIFYING DUNG WATER FROM CATTLE STABLES - BY HOMOGENISING, COAGULATING FILTERING, AND PURIFYING FILTRATE BIOLOGICALLY AND CHEMICALLY AND NEUTRALISING

Abstract: Purificn. is of high organic material contg. dung water obtd. in large scale stabling of cattle. In a first step, dung water is homogenised under aerobic conditions, without phase separation. Homogenised dung water is treated with coagulants, pref. $Al_2(SO_4)_3$ and greater than or equal to 1 anion-active polyelectrolyte. Solid phase obtd. is separated from liq. phase on filter presses. Liq. phase is purified in a biologically activated sludge step. Activated sludge is removed. Biologically purified filtrate water is re-purified chemically, pref. with CaO as precipitant, setting clarified water pH 10-11.5. Purified water is sepd. from solid phase and neutralised. Ppte. formed is sepd. from purified water in a further settling step. Water-consumption is minimised. Solids obtd. can be composted naturally, for use as agricultural fertilisers. Liq. phase can be used for watering fields and causes no pollution. It can be re-used for rinsing stables. Dung water contg. 1.8-8 weight percent organic material can be processed to 2 end-prods.: purified water and pressed sludge.

Classifications:

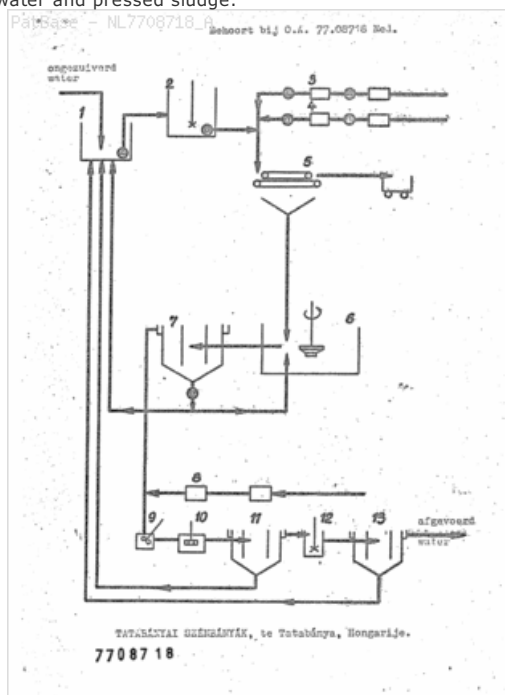
International (IPC 8-9): A01C3/00 C02F1/66 C02F3/12 C05F3/00 (Advanced/Invention);

A01C3/00 C02F1/66 C02F3/12 C05F3/00 (Core/Invention)

International (IPC 1-7): C02C1/02 C05F3/00

CPC: C02F3/1215 A01C3/00 C02F1/66 C05F3/00 Y02W10/15 Y02P20/145 Y02A40/205

European: A01C3/00 C02F1/66 C02F3/12A4 C02F3/12D C05F3/00



Family:

Publication number	Publication date	Application number	Application date
NL7708718 A	19790207	NL19770008718	19770805

Priority:

NL19770008718 19770805

Probable Assignee: TATABANYAI SZENBANYAK

Assignee(s): (std): TATABANYAI SZENBANYAK

Assignee(s): TATABANYAI SZENBANYAK TE TATABANYA HONGARIJE

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
NL7708718 A	19790207	LSPB	+	published / reissued	
NL7708718 A	19840501	LSES	+BA	A REQUEST FOR SEARCH OR AN INTERNATIONAL-TYPE SEARCH HAS BEEN FILED	
NL7708718 A	19851001	LSES	BB	A SEARCH REPORT HAS BEEN DRAWN UP	
NL7708718 A	19860203	LSES	+BC	A REQUEST FOR EXAMINATION HAS BEEN FILED	
NL7708718 A	19930401	LSLE	-BV	THE PATENT APPLICATION HAS LAPSED	

Title: WASTEWATER **PURIFICATION** FACILITY

Abstract: Source: EP1884497A3 [DE] Abwasserreinigungseinrichtung umfassend wenigstens ein Belebungsbecken, in dem das zu behandelnde Wasser-Schlamm-Gemisch mit Sauerstoff versetzt wird, sowie wenigstens ein dem Belebungsbecken nachgeschaltetes Nachklaerbecken, dem aus dem Belebungsbecken das Schlamm-Wasser-Gemisch zugefuehrt wird, das in geklaertes Wasser und einen dem Belebungsbecken rueckzufuehrenden wasserhaltigen Rueckschlamm getrennt wird, wobei dem Belebungsbecken (2) und/oder dem Nachklaerbecken (6) wenigstens eine Trenneinrichtung (20) nachgeschaltet ist, der aus dem Belebungsbecken (2) ein Teil des Schlamm-Wasser-Gemischs (3) und/oder aus dem Nachklaerbecken (6) zumindest ein Teil des Rueckschlamm (10) zugefuehrt wird, mittels der ein Abfallschlamm (23) enthaltend wenigstens ein aus vormals im Wasser geloest vorhandenen Reaktionspartnern gebildetes Reaktionsprodukt, insbesondere CaCO_3 , abtrennbar ist, und von der zurueckbleibendes Schlamm-Wasser-Gemisch oder Rueckschlamm dem Belebungsbecken (2) zufuehrbar ist.

Classifications:

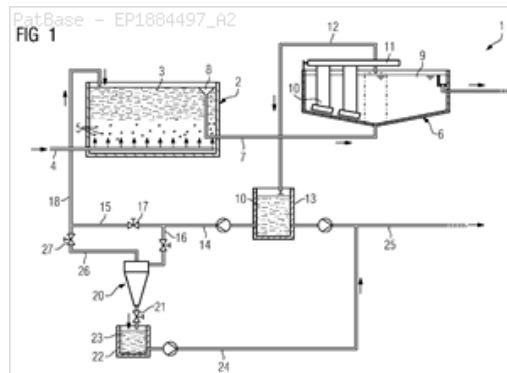
International (IPC 8-9): C02F3/12 (Advanced/Invention);

C02F3/12 (Core/Invention)

CPC: Y02W10/15 C02F3/12 C02F1/38 C02F1/74 C02F3/1221

C02F5/00

European: C02F3/12 C02F3/12A6 M02F1/38 M02F1/74 M02F5/00



Family:

Publication number	Publication date	Application number	Application date
DE102006034157 A1	20080131	DE200610034157	20060724
EP1884497 A2	20080206	EP20070111749	20070704
EP1884497 A3	20080910	EP20070111749	20070704

Priority:

DE200610034157 20060724

Probable Assignee: SIEMENS AG

Assignee(s): (std): SIEMENS AG

Assignee(s): SIEMENS AKTIENGESELLSCHAFT

Inventor(s): (std): STRAETZ KLAUS ; MUELLER BERND

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 MT NL PL PT RO RS SE SI SK TR

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
DE102006034157 A1	20080131	LSPB	+	published / reissued	
DE102006034157 A1	20080131	LSES	+OP8	REQUEST FOR EXAMINATION AS TO PARAGRAPH 44 PATENT LAW	
DE102006034157 A1	20100520	LSLE	-8139	DISPOSAL/NON-PAYMENT OF THE ANNUAL FEE	
EP1884497 A2	20080206	LSPB	+	published / reissued	
EP1884497 A3	20090513	LSFE	+AKX	DESIGNATION FEES PAID	
EP1884497 A3	20090916	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	EFFECTIVE DATE : 20090311

Title: SYSTEM AND METHOD OF ODOR CONTROL IN BIOSOLIDS

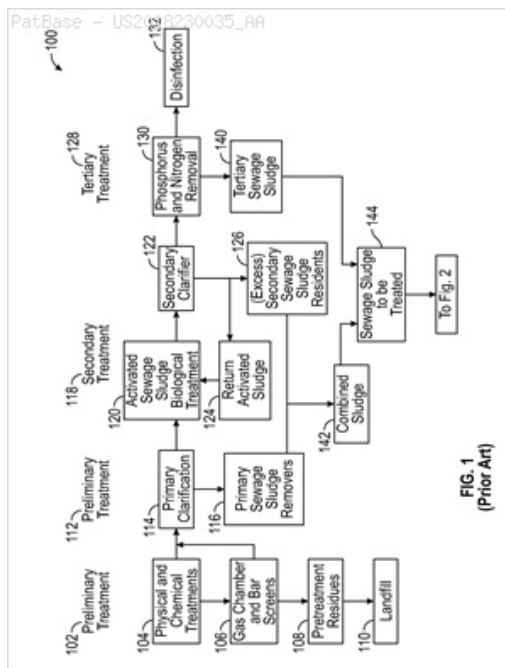
Abstract: The present disclosure is directed to a method and system of reducing odor causing compounds in biosolids. The method includes receiving sludge from a wastewater treatment plant, thickening the received sludge to achieve a desired percentage of biosolids in the sludge, generating ClO_2 , injecting the ClO_2 into the thickened sludge, exposing the thickened sludge to the ClO_2 for a predetermined period of time sufficient to oxidize the odor causing compounds and dewatering the deodorized thickened sludge to achieve a desired percentage of biosolids, wherein the dewatered biosolids are substantially free of odor.

Classifications:

International (IPC 8-9): C02F1/72 C02F1/76 C02F11/04 C02F11/06 C02F11/14 C02F3/28 C02F9/00 (Advanced/Invention)

CPC: C02F9/00 C02F11/04 C02F11/06 C02F11/123 C02F11/127 C02F11/14 C02F2303/02

US: 1/1 210/609

**Family:**

Publication number	Publication date	Application number	Application date
US2018230035 AA	20180816	US20170431173	20170213
WO18148672 A1	20180816	WO2018US17850	20180212

Priority:

US20170431173 20170213

Probable Assignee: WATER SOLUTIONS

Assignee(s): (std): WATER SOLUTIONS

Assignee(s): WATER SOLUTIONS A DIVISION OF AZURE WATER SERVICES LLC

Inventor(s): (std): TOMSHECK DENNIS

Agent(s): WEBER NATHAN 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 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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US2018230035 AA	20180816	LSPB	+	published / reissued	
US2018230035 AA	20170213	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WATER SOLUTIONS - A DIVISION OF AZURE WATER SERVICE OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:TOMSHECK, DENNIS; REEL/FRAME:041695/0983 EFFECTIVE DATE : 20170213
US2018230035 AA	20191003	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	
WO18148672 A1	20180816	LSPB	+	published / reissued	
WO18148672 A1	20190814	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE

WO18148672 A1	20200212	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 18751321 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :
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Title: BACTERIAL POLYPHENOL OXIDASE FROM BACILLUS FOR USE IN OXIDATION OF COLORED SUBSTANCES

Abstract: The present invention provides polyphenol oxidases from bacteria, particularly from the genus *Bacillus* including, without limitation, *B. licheniformis*, *B. natto*, and *B. sphaericus*. In some embodiments, the polyphenol oxidase has an optimum reaction pH of about 7; an optimum reaction temperature between 60 degrees centigrade and 80 degrees centigrade; and a molecular weight of 51,000 measured by gel filtration chromatography. The enzymes of the invention are useful for oxidizing and/or bleaching a variety of substrates.

Classifications:

International (IPC 8-9): C02F3/34 C11D3/00 C11D3/386 C12N1/20 C12N9/02 D06L3/02 D21C5/00 (Advanced/Invention); C02F3/34 C12N1/20 C12R1/07 C12R1/10 (Advanced/Non-invention); C02F3/34 C11D3/00 C11D3/38 C12N1/20 C12N9/02 D06L3/00 D21C5/00 (Core/Invention)

International (IPC 1-7): A61K3/844 A61K38/44 C02F3/34 C11D3/386 C12N1/20 C12N9/02 C12R1/07 C12R1/10 C12S3/04 D06L3/02

CPC: D06L4/10 C12N9/0059 C11D3/0021 C11D3/38654 D21C5/005

European: C11D3/00B4 C11D3/386H C12N9/00P22C1 D06L3/02 D21C5/00B

US: 424/94.4 424/944 435/189 435/252.5 435/264

PatBase - US6184014_BA

U.S. Patent Feb. 6, 2001 Sheet 1 of 2 US 6,184,014 B1

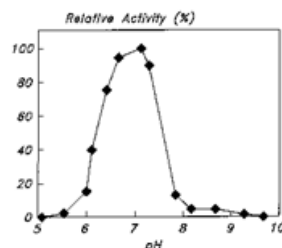


FIG 1

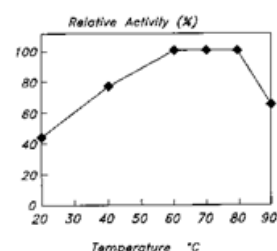


FIG 2

Family:

Publication number	Publication date	Application number	Application date
AU199714382 A1	19970822	AU19970014382	19970129
CN1209839 A	19990303	CN19971091942	19970129
EP0877800 A1	19981118	EP19970900945	19970129
JP9206071 A2	19970812	JP19960012977	19960129
US6184014 BA	20010206	US19980110960	19980707
US6184014 BB	20010206	US19980110960	19980707
WO9728257 A1	19970807	WO1997DK00038	19970129

Priority:

JP19960012977 19960129 WO1997DK00038 19970129

Probable Assignee: NOVOZYMES INC

Assignee(s): (std): NOVO NORDISK AS ; OHNO RITSUKO ; NOVONORDISK AS ; ECHIGO TAKASHI

Assignee(s): NOVO NORDISK A S ; NOVO NORDISK A S NOVO ALLEDK ; NOVOZYMES A S ; NOVOZYMES INC

Inventor(s): (std): ECHIGO TAKASHI SHOWA DENKO K K ; OHNO RITSUKO SHOWA DENKO K K ; ONO RITSUKO ; OHNO RITSUKO ; ECHIGO TAKASHI ; TAKASHI ECHIGO ; RITSUKO OHNO

Inventor(s): OHNO RITSUKO SHOWA DENKO KK ; ECHIGO TAKASHI SHOWA DENKO KK

Agent(s): TSURUTA JUNICHI; FUKUMOTO TSUMORU; HIGUCHI SOTOJI; ISHIDA TAKASHI; NISHIYAMA MASAYA; OHIE KUNIHISA; STEVE T ZELSON ESQ; REZA GREEN ESQ

Designated states: AL AM AT AU AZ BA BB BE BF BG BJ BR BY CA CF CG CH CI CN CU CZ DE DK EE ES FI FR GB GE GR HU IE IL IS IT KE KG KP KR KZ LC LI LK LR LS LT LU LV MC MD MG MK MN MW MX NL NO NZ PL PT RO RU SD SE SG SI SK SZ TJ TM TR TT UA UG US UZ VN

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU199714382 A1	19970822	LSPB	+	published / reissued	
CN1209839 A	19990303	LSPB	+	published / reissued	
CN1209839 A	19990303	LSPB	+C06	PUBLICATION	
CN1209839 A	20010808	LSRE	C53	CORRECTION OF PATENT FOR INVENTION OR PATENT APPLICATION	

CN1209839 A	20010808	LSRE	COR	CHANGE OF BIBLIOGRAPHIC DATA	TEXT : CORRECT: APPLICANT; FROM: NOVO NORDISK A/S TO: NUOWOQIMEIZI CO.,LTD.
CN1209839 A	20040728	LSDW	-C02	DEEMED WITHDRAWAL OF PATENT APPLICATION AFTER PUBLICATION (PATENT LAW 2001)	
EP0877800 A1	19981118	LSPB	+	published / reissued	
EP0877800 A1	19981118	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 19980831
EP0877800 A1	20010124	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	PARTYTYPE : OWNER OWNER : NOVOZYMES A/S
EP0877800 A1	20040102	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20031110
EP0877800 A1	20040929	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	EFFECTIVE DATE : 20040322
US6184014 BA	20010206	LSGT	+	granted / extensions (spc, cpc, pte)	
US6184014 BA	19980908	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : NOVO NORDISK A/S, DENMARK OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:ECHIGO, TAKASHI; OHNO, RITSUKO; REEL/FRAME:009464/0703; SIGNING DATES FROM 19980821 TO 19980823
US6184014 BA	20011227	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : NOVOZYMES A/S, DENMARK OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:NOVO NORDISK A/S; REEL/FRAME:012463/0868 EFFECTIVE DATE : 20011029
US6184014 BA	20050207	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US6184014 BA	20050309	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US6184014 BA	20050309	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	TEXT : PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362
US6184014 BA	20050405	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 20050206
US6184014 BA	20180707	PEXP		Calculated Patent Term Expiry	
US6184014 BB	20010206	LSGT	+	granted / extensions (spc, cpc, pte)	
US6184014 BB	20180707	PEXP		Calculated Patent Term Expiry	
WO9728257 A1	19970807	LSPB	+	published / reissued	
WO9728257 A1	19970129	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 97191942.9 COUNTRY OF REF DOCUMENT : CN
WO9728257 A1	19980626	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 1997900945 COUNTRY OF REF DOCUMENT : EP
WO9728257 A1	19980707	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 09110960 COUNTRY OF REF DOCUMENT : US
WO9728257 A1	19981118	LSPB	+WWP	WIPO	REF DOCUMENT NUMBER :

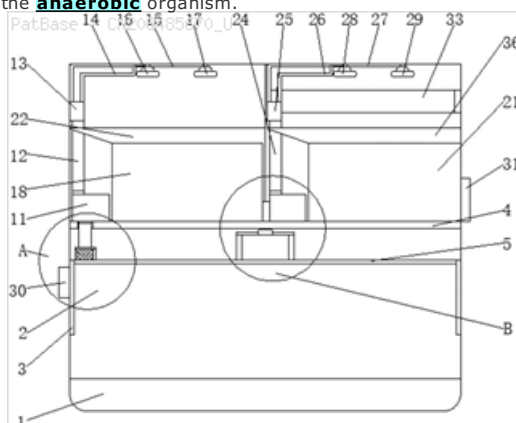
				INFORMATION: PUBLISHED IN NATIONAL OFFICE	1997900945 COUNTRY OF REF DOCUMENT : EP
WO9728257 A1	19981203	LSWD	REG	REFERENCE TO NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : 8642
WO9728257 A1	20040322	LSWD	-WWW	WIPO INFORMATION: WITHDRAWN IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 1997900945 COUNTRY OF REF DOCUMENT : EP

Title: WASTE WATER PURIFYING CIRCULATION DEVICE FOR COW BREEDING

Abstract: The utility model discloses a waste water purifying circulation device for cow breeding, including the base, the last fixed surface of base is connected with the **purification** main part, and the innerwall that purifies the main part is fixedly connected with slide rail and plywood respectively, and the superficial swing joint of slide rail has to slide and presses the net, slide press the net theupper surface respectively the fixedly connected with connecting frame with cross filter support, the fixed surface of connecting frame is connected with the movable block, filter support's fixed surface be connected with the filter screen. This waste water purifying circulation device for cow breeding, press net cooperation slide rail through the slip, the great floater of volume is filtered inmaking waste water, pass through the filter screen, less floater can be filtered in making waste water, through the first water pump of bellows cooperation, waste water after the messenger filters canbe through first raceway, first tee bend, first water pipe and second water pipe are carried in first shower nozzle and the second shower nozzle, thereby reached and made good use of effectively thatoxygen is biological to carry out offering after the **purification** of waste water agriculture cyclic utilization's mesh with the **anaerobic** organism.

Classifications:

International (IPC 8-9): C02F103/20 C02F3/30 (Advanced/Invention);
C02F103/20 (Advanced/Non-invention)

**Family:**

Publication number	Publication date	Application number	Application date
■ CN208485670 U	20190212	CN201820483245U	20180408

Priority:

CN201820483245U 20180408

Probable Assignee: HUAXIA ANIMAL HUSBANDRY XINGHUA CO LTD

Assignee(s): (std): HUAXIA ANIMAL HUSBANDRY XINGHUA CO LTD

Assignee(s): HUAXIA XINGHUA ANIMAL HUSBANDRY CO LTD ; HUAXIA ANIMAL HUSBANDRY XINGHUA CO

Inventor(s): (std): YAO YUANZHE

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN208485670 U	20190212	LSGT	+	granted / extensions (spc, cpc, pte)	
CN208485670 U	20190212	LSGT	+GR01	PATENT GRANT	
CN208485670 U	20280408	PEXP		Calculated Patent Term Expiry	

Title: BIOLOGICAL PROCESS FOR WASTE WATER PURIFICN.

Abstract: Biological process for waste water purificn. uses unit which comprises pre-sedimentation, post-sedimentation and \-2 reactor tanks; the plant being adapted and equipped for operation in accordance with both the activated sludge process and the fixed bed process. The process is carried out in the respective or predetermined reaction chambers, over a given time sequence and as a function of the qualitative content of the reactor, as follows: the bio-zone is changed between the freely suspended state and the submerged and solidifying, sessile state by periodic dispersion of the sessile formation of the microflora, pref. through intensive movement of the solid bed. The formation and growth of the sessile formation is then supported. Also claimed is a plant for carrying out the process as above.

Classifications:

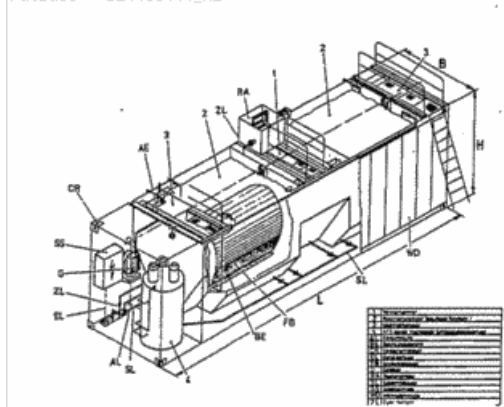
International (IPC 8-9): C02F3/08 C02F3/20 (Advanced/Invention); C02F3/08 C02F3/20 (Core/Invention)

International (IPC 1-7): C02F3/02 C02F3/10 C02F3/12 C02F3/28

CPC: Y02W10/15 C02F3/208 C02F3/082

European: C02F3/20F M02F3/08B

PatBase - DE4433444_R1



Family:

Publication number	Publication date	Application number	Application date
DE4433444 A1	19960321	DE19944433444	19940920

Priority:

DE19944433444 19940920

Probable Assignee: INGENIEURZENTRUM SCHIFFBAU GMB

Assignee(s): (std): INGENIEURZENTRUM SCHIFFBAU GMB

Assignee(s): INGENIEURZENTRUM SCHIFFBAU GMBH 18055 ROSTOCK DE

Inventor(s): (std): WEISE JOERG ; LIESKE ULRICH

Inventor(s): WEISE JOERG 18109 ROSTOCK DE ; LIESKE ULRICH 18059 ROSTOCK DE

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
DE4433444 A1	19960321	LSPB	+	published / reissued	
DE4433444 A1	19960321	LSES	+OM8	SEARCH REPORT AVAILABLE AS TO PARAGRAPH 43 LIT. 1 SENTENCE 1 PATENT LAW	
DE4433444 A1	19970911	LSLE	-8139	DISPOSAL/NON-PAYMENT OF THE ANNUAL FEE	

Title: SYSTEM AND METHOD FOR OXYGEN SUPPLY FOR WASTEWATER TREATMENT PLANT HAVING BIOLOGICAL TREATMENT SYSTEM AND SUPERCRITICAL WATER OXIDATION TREATMENT OF SLUDGE

Abstract: A method for supplying oxygen to a wastewater treatment plant with a supercritical water oxidation reactor (6) is disclosed. The preferred method involves the constructing and operation of an air separation system (7) proximate the location of the wastewater treatment plant and SCWO reactor (6) to separate oxygen from air and produce a first output of high pressure oxygen (8) and a second output of gaseous oxygen (9). The gaseous oxygen from a second output (9) of the air separation system (7) is supplied to one or more biological systems (3) in the wastewater treatment plant whereas the high pressure oxygen (8) is supplied to the SCWO reactor (6). An aqueous-based sludge stream at supercritical pressures is combined with the high pressure oxygen and reacted in the SCWO reactor (6) to destroy all organic materials present in the sludge stream.

Classifications:

International (IPC 8-9): C02F11/08 C02F3/12 C02F3/26 F25J3/04 (Advanced/Invention)

CPC: C02F3/12 C02F3/06 C02F3/26 C02F11/08 C02F11/086 F25J3/04527 F25J2215/54 C10L5/46 Y02E50/10 Y02E50/30 Y02W10/30 Y02W10/15

European: C02F11/08D C02F3/12 C02F3/26 M02F11/08 M02F3/06

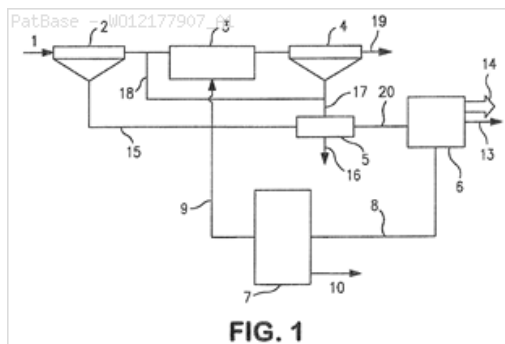


FIG. 1

Family:

Publication number	Publication date	Application number	Application date
WO12177907 A1	20121227	WO2012US43586	20120621

Priority:

US20110499958P 20110622

Probable Assignee: PRAXAIR TECHNOLOGY INC

Assignee(s): (std): BILLINGHAM JOHN ; NOVAK RICHARD ; PRAXAIR TECHNOLOGY INC

Inventor(s): (std): NOVAK RICHARD ; BILLINGHAM JOHN

Agent(s): GRUNE GUERRY 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 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 QA RO RS RU RW 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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
WO12177907 A1	20121227	LSPB	+	published / reissued	
WO12177907 A1	20131223	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO12177907 A1	20140716	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 12733327 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :

Title: CAPACITY MEASUREMENT OF AN **ANAEROBIC** SLUDGE BED REACTOR

Abstract: The invention is directed to online capacity measurement of an **anaerobic** sludge bed reactor for an **anaerobic** waste water **purification** process, said process comprising measuring the sludge bed height monitoring the sludge bed reactor activity and combining the data thus obtained to determine the capacity.

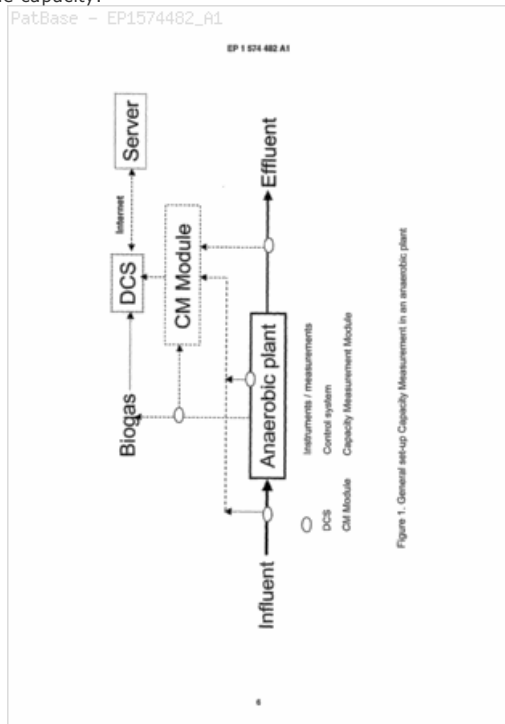
Classifications:

International (IPC 8-9): C02F3/00 C02F3/28 (Advanced/Invention);
C02F1/00 (Advanced/Non-invention);
C02F3/00 C02F3/28 (Core/Invention);
C02F1/00 (Core/Non-invention)

International (IPC 1-7): C02F3/00 C02F3/28

CPC: Y02E50/343 C02F3/2846 C02F3/006 C02F3/28 C02F2209/006
C02F2209/008 C02F2209/06 C02F2209/07 C02F2209/12
C02F2209/42

European: C02F3/00R C02F3/28 C02F3/28N M02F209/00T2
M02F209/00T4 M02F209/06 M02F209/07 M02F209/12 M02F209/42



Family:

Publication number	Publication date	Application number	Application date
EP1574482 A1	20050914	EP20040075827	20040312

Priority:

EP20040075827 20040312

Probable Assignee: BIOTHANE SYSTEMS INT BV

Assignee(s): (std): BIOTHANE SYSTEMS INT BV

Assignee(s): BIOTHANE SYSTEMS INTERNATIONAL B V

Inventor(s): (std): VERSPRILLE ABRAHAM IZAAK ; FRANKIN ROBERTUS JOHANNES

Designated states: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PL PT RO SE SI SK TR

Legal status (INPADOC)

[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
EP1574482 A1	20050914	LSPB	+	published / reissued	
EP1574482 A1	20060315	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20060112
EP1574482 A1	20060531	LSFE	+AKX	DESIGNATION FEES PAID	COUNTRY OF REF DOCUMENT : AT COUNTRY OF REF DOCUMENT : BE COUNTRY OF REF DOCUMENT : BG COUNTRY OF REF DOCUMENT : CH COUNTRY OF REF DOCUMENT : CY COUNTRY OF REF DOCUMENT : CZ COUNTRY OF REF DOCUMENT : DE COUNTRY OF REF DOCUMENT : DK COUNTRY OF REF DOCUMENT : EE COUNTRY OF REF DOCUMENT : ES COUNTRY OF REF DOCUMENT : FI COUNTRY OF REF DOCUMENT : FR COUNTRY OF REF DOCUMENT : GB COUNTRY OF REF DOCUMENT : GR COUNTRY OF REF DOCUMENT : HU COUNTRY OF REF DOCUMENT : IE COUNTRY OF REF DOCUMENT : IT COUNTRY OF REF DOCUMENT : LI COUNTRY OF REF DOCUMENT : LU COUNTRY OF REF DOCUMENT : MC COUNTRY OF REF DOCUMENT : NL COUNTRY OF REF DOCUMENT : PL COUNTRY OF REF DOCUMENT : PT COUNTRY OF REF DOCUMENT : RO COUNTRY OF REF DOCUMENT : SE

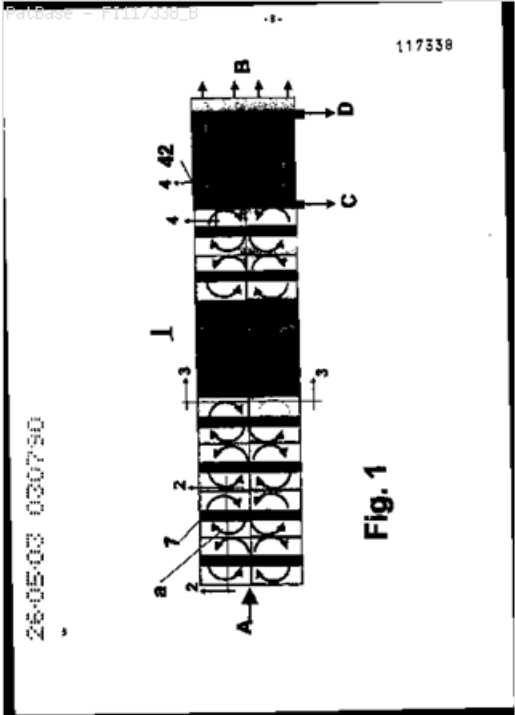
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EP1574482 A1	20071212	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20071107
EP1574482 A1	20110615	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	PARTYTYPE : OWNER OWNER : VEOLIA WATER SOLUTIONS & TECHNOLOGIES SUPPORT
EP1574482 A1	20180307	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	EFFECTIVE DATE : 20171003

Title: BIOLOGINEN JAETEVEDENPUHDISTAMO BIOLOGISKT AVLOPPSRENINGSVRK

Abstract: Source: FI117338B [FI] Keksintö kohdistuu vedenpuhdistuslaitteistoon, johon kuuluu ainakin yksi jaetevesien hapetusallasosa ja jossa on perätaeisäie roottorihapettimia, joissa on moottoriosia 1, josta menee ontto akseli 33 vedessä olevaan juoksuyöaraeosaan 2, joka on ulkokehaeltäen rei'itetty 32 ja jonka sisäällä on juoksuyöarae 31. Juoksuyöaraeosasta on sijoitusaltaan pohjalle 5 imuputki 3. Moottorin pyörittäessä juoksuyöarae 31 imeytyy sekä kaasua E/F että kaesiteltäeväeä nestettä virtauksena G juoksuyöaraeosaan 2. Näin kaasu ja neste sekoittuvat keskenään ja tapahtuu biologiset reaktiot. Keksinnöille on edullista peräkkäisten juoksuyöarien juoksuyöaraeosassaan 2 pyöriä eri suuntiin, jolloin aukkojen 32 kautta ulostulevat virtaukset vahvistavat toisiaan ja liikkuvat virtauksena a. Biokaesittelylinjoja voi olla rinnakkain, jolloin kapasiteetti vastaavasti lisäeäntyy. Kaesittelylinjassa peräkkäisten roottoreiden mäarae riippuu biokaesittelyn tarpeesta. Keksinnön mukaan linjassa on hapetusvaihe, jolloin onttoa akselia 33 pitkin imeytyvä kaasu E on ilmaa tai muuten hapettavaa kaasua F. Täelloin tapahtuu esimerkiksi BOD-poistossa ns, denitrifikaatio eli typen poisto, Laitteistoon voi kuulua myös peikistysallasosa. Imuputki ulottuu altaan pohjalle 5 saakka, joka voi olla sopivimmin kalottimainen. Näin varmistetaan, ettei pohjalle jäe pohjalietettä seisomaan tai varastoitumaan. Laitteiston loppupäeäessä voi olla flotaatio- tai selkeytysallasosa. [SV] Uppfinningen inriktas på vattenreningsanläggning, som omfattar åtminstone en oxidationsbassängsdel och successiva rotoroxidanter som uppvisar en motordel 1, varifrån en ihålig axel 33 går till en i vatten belägen rotordel 2, vars yttre cirkel är perforerad 32 och inne i vilken finns en rotor 31. Från rotordelen går till botten 5 av en placeringsbassäng ett sugrör 3. DA motorn driver rotorn 31 absorberas bade gas E/F och den vätska som skall behandlas som flöde G till rotordelen 2. PA så saett blandas gas och vätska med varandra och de biologiska reaktionerna äger rum. Foerdelaktigt för uppfinningen är att de successiva rotorerna roterar i sin rotordel 2 i olika riktningar, varvid flöden ut ur öppningar 32 förstärker varandra och rör sig som flöde a. Det kan finnas flera biobehandlingslinjer bredvid varandra, varvid kapaciteten i motsvarande grad ökar. Antalet successiva rotorer i behandlingslinjen beror på behov av biobehandling. Enligt uppfinningen uppvisar linjen en oxidationsfas, varvid den gas E som absorberas längs den ihåliga axeln 33 är luft eller på annat sätt oxiderande gas F. Salunda sker t.ex, vid BOD-reduktionen en s.k, denitrifikation d.v.s. kvävereduktion. Anläggningen kan också omfatta en reduktionsbassängsdel. Sugröret sträcker sig till botten 5 av bassängen, vilken botten försees med en form av en kalott. PA så saett försäkras att botten slam inte stannar eller upplagras på botten. Slutet av anläggningen kan uppvisa en flotations- eller klarningsbassängsdel. **Machine translation:** Keksintö relates to a water **purification** apparatus comprising at least one jaetevesien hapetusallasosa and having a perätaeisäie roottorihapettimia with the motor 1, which goes to the hollow shaft 33 vedessä the juoksuyöaraeosaan 2, which is perforated ulkokehaeltäen 32 and which is sisäällä juoksuyöarae 31 Juoksuyöaraeosasta position is on the bottom of the pool 5 the suction tube 3. The engine 31 is absorbed pyörittäessä juoksuyöaraeäe sekä gas E / F että kaesiteltäeväeä nestettä flow G juoksuyöaraeosaan 2. Näin gas and the liquid are mixed keskenään and biological reactions to occur. Keksinnöille is preferred peräkkäisten juoksuyöarien juoksuyöaraeosassaan pyöriä two different directions, the openings 32 will flow out to reinforce each other and a moving stream. Biokaesittelylinjoja may be parallel, wherein the capacity lisäeäntyy respectively. Kaesittelylinjassa peräkkäisten rotors mäarae depends on the need biokaesittelyn. Keksinnön of the line is the oxidation step, whereby the hollow shaft 33 along the imeytyvä E gas is air or other oxidizing gas F. Täelloin happens, for example, BOD removal of the so-called, denitrification or nitrogen removal, the apparatus may include myös peikistysallasosa. The suction tube extends to the bottom of the tank 5, which may be preferably kalottimainen. Näin ensure that the bottom jäe pohjalietettä to stand or stored in the country. Loppupäeäessä apparatus can be selkeytysallasosa or flotation.

Classifications:

International (IPC 8-9): C02F3/02 C02F3/20
C02F3/30 (Advanced/Invention);
C02F3/02 C02F3/20 C02F3/30 (Core/Invention)
International (IPC 1-7): C02F3/02 C02F3/20 C02F3/30
CPC: Y02W10/15



Family:

Publication number	Publication date	Application number	Application date
FI117338 B	20060915	FI20030000790	20030526
FI20030790 A	20041127	FI20030000790	20030526
FI20030790 A0	20030526	FI20030000790	20030526

Priority:

FI20030000790 20030526

Probable Assignee:

VSJ HOLDING OY

Assignee(s): (std):

VSJ HOLDING OY ; WISER OY LTD

Inventor(s): (std):

JARVENPÄÄE VILJO

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
FI117338 B	20060915	LSGT	+	granted / extensions (spc, cpc, pte)	
FI117338 B	20060915	LSGT	+FG	PATENT GRANTED	REF DOCUMENT NUMBER : 117338 COUNTRY OF REF DOCUMENT : FI
FI117338 B	20070627	LSAS	PC	TRANSFER OF ASSIGNMENT OF PATENT	PARTYTYPE : OWNER OWNER : WISER OY OLDPARTY : WISER OY
FI117338 B	20071130	LSLE	-MA	PATENT EXPIRED	
FI117338 B	20230526	PEXP		Calculated Patent Term Expiry	
FI20030790 A	20041127	LSPB	+	published / reissued	
FI20030790 A0	20041125	LSAS	PC	TRANSFER OF ASSIGNMENT OF PATENT	PARTYTYPE : OWNER OWNER : VSJ HOLDING OY

Title: **PURIFICATION** PLANT FOR LIVESTOCK WASTE WATER

Abstract: The present invention relates to an apparatus for treating livestock wastewater, which comprises a grit chamber, an **anaerobic** tank, a first aerobic tank, a second aerobic tank, a first precipitation tank, a chromaticity dilution module, a second precipitation tank, a plurality of cartridge filter tanks, a membrane filter tank, and the like. The apparatus is designed to increase the efficiency of each step and to make the overall facility compact.

Classifications:

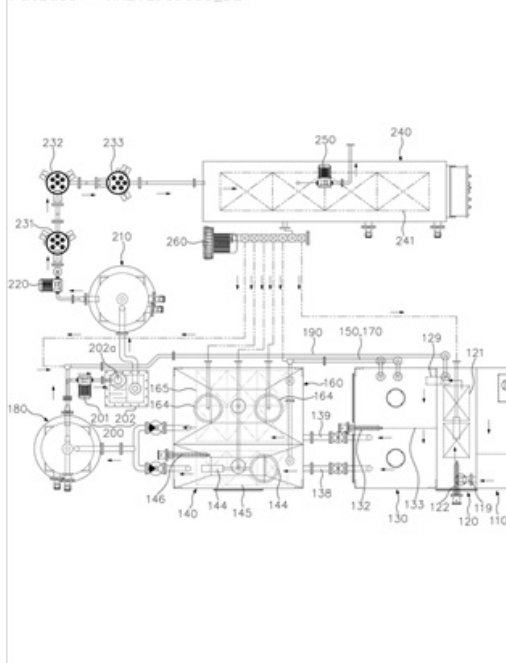
International (IPC 8-9): B01D35/02 B01D63/02 C02F1/44 C02F1/50 C02F3/10 C02F3/12 C02F3/20 C02F3/30

C02F9/00 (Advanced/Invention);

C02F103/20 (Advanced/Non-invention)

CPC: B01D35/02 B01D63/02 C02F1/44 C02F1/50 C02F3/10 C02F3/1215 C02F3/1221 C02F3/1284 C02F3/20 C02F3/302 C02F9/005 C02F2103/20

PatBase - KR101989883_B1



Family:

Publication number	Publication date	Application number	Application date
KR101989883 B1	20190618	KR20180143120	20181120

Priority:

KR20180143120 20181120

Probable Assignee: HOSEUNG ENT CO LTD

Assignee(s): (std): HOSEUNG ENT CO LTD ; YANG SEUNG JIN

Assignee(s): YANGSEUNGJIN ; NOTE W CO ; HOSEUNG ENT CO

Inventor(s): (std): YANG SEUNG JIN

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
KR101989883 B1	20190618	LSGT	+	granted / extensions (spc, cpc, pte)	
KR101989883 B1	20190611	LSGT	+GRNT	WRITTEN DECISION TO GRANT	
KR101989883 B1	20381120	PEXP		Calculated Patent Term Expiry	

Title: AERATED REACTOR WITH INTERNAL SOLIDS SEPARATION

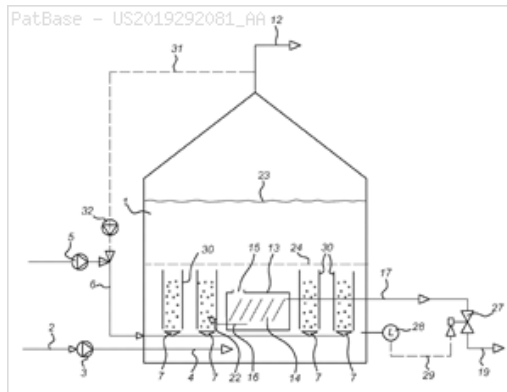
Abstract: A process for aerobic treatment of wastewater is provided, which process comprises: (a) supplying a liquid influent comprising wastewater to a reactor containing granular biomass; (b) subjecting the reaction mixture to aerobic conditions comprising a concentration of dissolved oxygen from 0.1 mg/L to 4.0 mg/L, and a hydraulic retention time from 0.5 to 72 hours; (c) separating the reaction mixture into granular biomass and treated wastewater; and (d) recycling separated granular biomass to the reaction mixture. A bioreactor for the process is also disclosed, comprising a reaction vessel provided with an aeration means, a solids separation device with an inlet in the lower part of the reaction vessel having an outlet line for solids arranged to transport separated solids to a riser driven by airlift action and arranged to transport the solids to the upper part of the reaction chamber.

Classifications:

International (IPC 8-9): B01D21/00 C02F1/00 C02F3/08 C02F3/10 C02F3/12 C02F3/22 C02F3/30 C02F3/34 (Advanced/Invention); B01D21/00 C02F1/00 C02F3/22 (Advanced/Non-invention)

International (IPC 1-7): B01D21/00 C02F1/00 C02F3/22 C02F3/30

CPC: C02F2101/16 C02F2203/006 B01D21/0045 C02F1/006 C02F3/223 C02F3/307 C02F2209/42 C02F2301/046 Y02W10/15



Family:

Publication number	Publication date	Application number	Application date
AU2017375056 AA	20190711	AU20170375056	20171218
AU2017375056 AB	20190725	AU20170375056	20171218
BR112019012125 A2	20191105	BR20191112125	20171218
CA3047223 AA	20190614	CA20173047223	20171218
CN110392672 A	20191029	CN201780086759	20171218
CO20190006280 A2	20191021	CO20190006280	20190617
EP3555006 A1	20191023	EP20170823093	20171218
ID201907159 A	20190927	ID2019P0004909	20171218
IN201917028399 A	20190927	IN201917028399	20190715
JP2020501890 T2	20200123	JP20190532080T	20171218
KR20190092540 A	20190807	KR20197020202	20171218
MX2019007148 A1	20191014	MX20190007148	20171218
PH2019501376 A	20191028	PH20190501376	20190614
US2019292081 AA	20190926	US20190442115	20190614
WO18109235 A1	20180621	WO2017EP83398	20171218

Priority:

EP20160204837 20161216 WO2017EP83398 20171218 US20190442115 20190614

Probable Assignee: PAQUES IP BV

Assignee(s): (std): PAQUES IP BV ; PARQUES I P BV

Assignee(s): PARQUES IP BV ; REMY MAXIME JOSE JEAN ; PRINS RIENK ; VOGELAAR JACOB CORNELIS THEODORUS ; PAQUES I P BV

Inventor(s): (std): REMY MAXIME JOSE JEAN ; PRINS RIENK ; VOGELAAR JACOB CORNELIS THEODORUS ; MAXIME JOSE JEAN REMY ; RIENK PRINS ; JACOB CORNELIS THEODORUS VOGELAAR ; REMY MAXIME JOS JEAN

Agent(s): GRIFFITH HACK; GOWLING WLG CANADA LLP; NEDERLANDSCH OCTROOIBUREAU; BUDI RAHMAT SH

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 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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU2017375056 AA	20190711	LSPB	+	published / reissued	
AU2017375056 AB	20190725	LSRE	DA3	AMENDMENTS MADE SECTION 104	TEXT : THE NATURE OF THE AMENDMENT IS AS SHOWN IN THE STATEMENT FILED 25 JUN 2019
CA3047223 AA	20190614	LSPB	+	published / reissued	
CN110392672 A	20191029	LSPB	+	published / reissued	
CN110392672 A	20191029	LSPB	PB01	PUBLICATION	

CO20190006280 A2	20191021	LSPB	+	published / reissued	
EP3555006 A1	20191023	LSPB	+	published / reissued	
EP3555006 A1	20191023	LSSE	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20190614
ID201907159 A	20190927	LSPB	+	published / reissued	
IN201917028399 A	20190927	LSPB	+	published / reissued	
JP2020501890 T2	20191001	LSRE	A521	WRITTEN AMENDMENT	TEXT : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20190815
KR20190092540 A	20190807	LSPB	+	published / reissued	
MX2019007148 A1	20191014	LSPB	+	published / reissued	
PH2019501376 A	20191028	LSPB	+	published / reissued	
US2019292081 AA	20190926	LSPB	+	published / reissued	
US2019292081 AA	20200114	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : PAQUES I.P. B.V., NETHERLANDS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:REMY, MAXIME JOSE JEAN; PRINS, RIENK; VOGELAAR, JACOB CORNELIS THEODORUS; REEL/FRA:051505/0948 EFFECTIVE DATE : 20190826
WO18109235 A1	20180621	LSPB	+	published / reissued	
WO18109235 A1	20190614	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2019532080 COUNTRY OF REF DOCUMENT : JP KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO18109235 A1	20190614	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 3047223 COUNTRY OF REF DOCUMENT : CA
WO18109235 A1	20190618	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO18109235 A1	20190711	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2017375056 COUNTRY OF REF DOCUMENT : AU DATE OF REF DOCUMENT : 20171218 KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO18109235 A1	20190711	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 20197020202 COUNTRY OF REF DOCUMENT : KR KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO18109235 A1	20190719	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2017823093 COUNTRY OF REF DOCUMENT : EP EFFECTIVE DATE : 20190716
WO18109235 A1	20191105	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 112019012125 COUNTRY OF REF DOCUMENT : BR KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) : EFFECTIVE DATE : 20190613

Title: BIOREMEDIATION OF PERSISTENT ORGANIC POLLUTANTS USING THERMOPHILIC BACTERIA

Abstract: The present application relates to a method of degrading organic contaminants in contaminated soil, sediment or wastewater, the method being carried out by treating the contaminated soil, sediment or wastewater with thermophilic bacterium capable of degrading the organic contaminants.

Classifications:

International (IPC 8-9): A62D3/02 B09B3/00 B09C1/00 B09C1/02 B09C1/06 B09C1/10 C02F3/00 C02F3/02 C02F3/34 C02F9/00 (Advanced/Invention); C02F1/02 (Advanced/Non-invention)

CPC: B09C2101/00 B09B3/00 B09C1/06 B09C1/10 C02F3/02 C02F2101/327 C02F2101/36 C02F2101/366 C02F2301/106 C02F2305/06 C02F3/28 C02F3/34 C02F3/342 C02F2101/30 C02F2101/306 C02F2101/363 Y02W10/15

US: 210/606 210/612 405/258.1 435/262.5

PatBase - US2013295650_AA

Characterization of *Geobacillus* strain

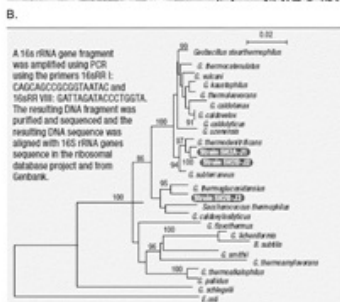
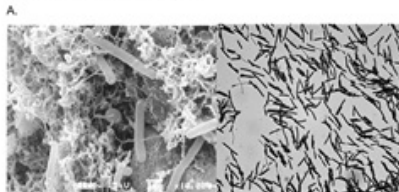


Fig. 1

Family:

Publication number	Publication date	Application number	Application date
CA2858338 AA	20140805	CA20132858338	20130709
US2013295650 AA	20131107	US20130937059	20130708
US2014042087 AA	20140213	US20130758490	20130204
WO13116830 A1	20130808	WO2013US24619	20130204
WO14120273 A1	20140807	WO2013US49728	20130709

Priority:

US20120594530P 20120203 US20130758490 20130204 WO2013US24619 20130204
US20130937059 20130708 WO2013US49728 20130709

Probable Assignee: THERMOCYCLOMICS LLC

Assignee(s): (std): THERMOCYCLOMICS LLC

Assignee(s): THERMOCYCLOMICS LLC1200 FLORENCE-COLUMBUS ROADBORDENTOWNNJ08505US ; DIFILIPPO ROBERT ; O DRISCOLL KEVIN ; PICCILLO PAUL ; SAMBROTTO RAYMOND

Inventor(s): (std): SAMBROTTO RAYMOND ; DIFILIPPO ROBERT ; PICCILLO PAUL ; O DRISCOLL KEVIN

Inventor(s): O DRISCOLL KEVINUS ; DIFILIPPO ROBERTUS ; PICCILLO PAULUS ; SAMBROTTO RAYMONDUS

Agent(s): SHAPIRO COHEN LLP; AVENTUM IP LAW LLP; CEPEDA MILAGROS A

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 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 PA PE PG PH PL PT QA RO RS RU RW 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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CA2858338 AA	20140805	LSPB	+	published / reissued	
CA2858338 AA	20170822	LSLE	-FZDE	DEAD	EFFECTIVE DATE : 20170711
US2013295650 AA	20131107	LSPB	+	published / reissued	
US2013295650 AA	20141027	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : THERMOCYCLOMICS, LLC, NEW YORK OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:O'DRISCOLL, KEVIN; SAMBROTTO, RAYMOND; DIFILIPPO, ROBERT; AND OTHERS; REEL/FRAME:034042/0381 EFFECTIVE DATE : 20140811
US2013295650 AA	20161212	LSWD	-ABD3	Abandoned - Failure to Respond to	

				an Office Action	
US2014042087 AA	20140213	LSPB	+	published / reissued	
US2014042087 AA	20150902	LSWD	-ABD3	Abandoned - - Failure to Respond to an Office Action	
WO13116830 A1	20130808	LSPB	+	published / reissued	
WO13116830 A1	20140804	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO13116830 A1	20150722	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 13744363 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :
WO14120273 A1	20140807	LSPB	+	published / reissued	
WO14120273 A1	20140805	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2858338 COUNTRY OF REF DOCUMENT : CA KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO14120273 A1	20150804	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO14120273 A1	20160824	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 13874094 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :

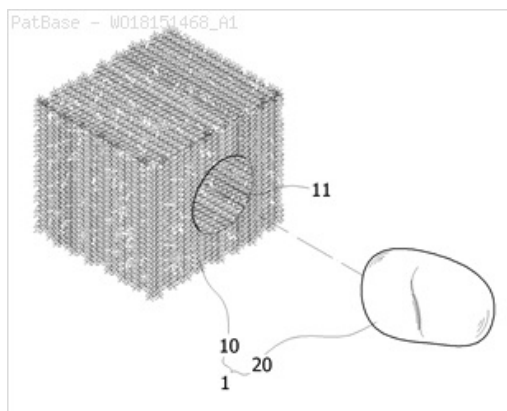
Title: STATIONARY-PHASE CARRIER FOR PURIFYING SEWAGE/WASTEWATER AND SEWAGE TREATMENT DEVICE USING SAME

Abstract: Disclosed are a sewage-purifying carrier which can be fabricated at low cost and a sewage treatment device using an eco-friendly sewage-purifying carrier which has a small size and is buried under the ground to be semi-permanently usable. A carrier for sewage according to the present invention comprises: a carrier body made of a foamed and porous synthetic resin for allowing a microbe to live therein; and a weight body forcedly inserted into a hole formed by cutting a part of the carrier body.

Classifications:

International (IPC 8-9): C02F1/52 C02F3/10 C02F3/12 C02F3/30 C02F3/32 C02F3/34 (Advanced/Invention)

CPC: Y02W10/15 C02F1/52 C02F3/10 C02F3/1215 C02F3/30 C02F3/32 C02F3/34



Family:

Publication number	Publication date	Application number	Application date
KR101825361 B1	20180207	KR20170020122	20170214
WO18151468 A1	20180823	WO2018KR01751	20180209

Priority:

KR20170020122 20170214

Probable Assignee: L AND H ECOENVIRONMENT

Assignee(s): (std): L AND H ECOENVIRONMENT

Assignee(s): NOTE ELEMENTS AND H ECHO ENVIRONMENT

Inventor(s): (std): CHOI JAE YONG ; HWANG PIL GI ; KIM DAE HWAN ; CHOI CHUL HO

Agent(s): ERUUM AND LEEON INTELLECTUAL PROPERTY LAW FIRM

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 KW 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 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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
KR101825361 B1	20180207	LSGT	+	granted / extensions (spc, cpc, pte)	
KR101825361 B1	20180119	LSGT	+E701	DECISION TO GRANT OR REGISTRATION OF PATENT RIGHT	
KR101825361 B1	20180130	LSGT	+GRNT	WRITTEN DECISION TO GRANT	
KR101825361 B1	20370214	PEXP		Calculated Patent Term Expiry	
WO18151468 A1	20180823	LSPB	+	published / reissued	
WO18151468 A1	20190815	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE

Title: PASSIVE DRAIN FIELD SYSTEM FOR WASTEWATER TREATMENT AND ASSOCIATED METHODS

Abstract: A passive drain field assembly reduces nitrogen in wastewater by facilitating nitrification and denitrification. A first chamber receives effluent into a multi-pipe bundle. An air vent is provided that extends from the atmosphere into the first chamber. A second chamber receives effluent from the first chamber, and contains a medium, beneath which is positioned a drainage pipe for releasing treated effluent into the soil therebeneath. A berm creates a retention area in the second chamber that is lined with a water-impermeable liner. In use, ammonia present in the effluent is converted to nitrate in the presence of the oxygen admitted by the air vent in the first chamber. The liquid retained upstream of the berm and above the liner undergoes **anaerobic** reactions. The remaining liquid proceeds to a place in the second chamber from which the drainage pipe can be entered, from which the treated wastewater can enter the soil.

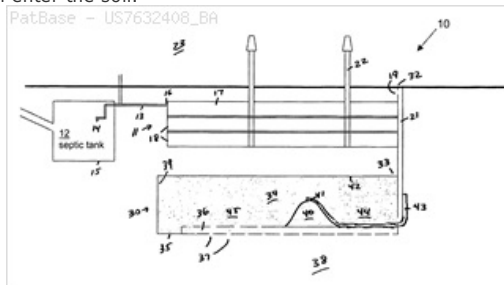
Classifications:

International (IPC 8-9): C02F3/30 E02B11/00 (Advanced/Invention); C02F3/30 (Core/Invention)

CPC: Y10S210/903 C02F3/302 C02F3/288 C02F3/306 C02F2101/16 C02F2103/005 C02F1/004 C02F2103/001 E03B3/03 E03F1/005 Y02A20/108

European: C02F3/28T4 C02F3/30D C02F3/30D4B M02F1/00D6 M02F101/16 M02F103/00B M02F103/00E

US: 210/151 210/170.08 210/605 210/615 210/617 210/630 210/747 210/747.1 210/903 405/38 405/43 405/45 405/50 405/51

**Family:**

Publication number	Publication date	Application number	Application date
US7632408 BA	20091215	US20080147722	20080627
US8240950 BA	20120814	US20090545291	20090821
US8753036 BA	20140617	US20120584067	20120813

Priority:

US20070947060P 20070629 US20080147722 20080627 US20090545291 20090821
US20120584067 20120813

Probable Assignee: ENVIRONMENTAL CONSERVATION SOLUTIONS LLC

Assignee(s): (std): EVERSON DOUGLAS G ; PLASTIC TUBING

Assignee(s): PLASTIC TUBING IND ; PLASTIC TUBING IND INC ; PLASTIC TUBING INDUSTRIES INC ; ENVIRONMENTAL CONSERVATION SOLUTIONS LLC

Inventor(s): (std): EVERSON DOUGLAS G

Agent(s): ALLEN DYER DOPPELT MILBRATH AND GILCHRIST; ALLEN DYER DOPPELT MILBRATH AND GILCHRIST PA; ALLEN DYER ET AL

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US7632408 BA	20091215	LSGT	+	granted / extensions (spc, cpc, pte)	
US7632408 BA	20091105	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : PLASTIC TUBING INDUSTRIES, INC., FLORIDA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:EVERSON, DOUGLAS G.; REEL/FRAME:023474/0958 EFFECTIVE DATE : 20080626
US7632408 BA	20091124	LSGT	PAT1	Patented Case	
US7632408 BA	20091124	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US7632408 BA	20130325	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US7632408 BA	20161208	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ENVIRONMENTAL CONSERVATION SOLUTIONS, LLC, FLORIDA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:PLASTIC TUBING INDUSTRIES, INC.; REEL/FRAME:040604/0776 EFFECTIVE DATE : 20161207
US7632408 BA	20171121	LSFE	FEPP	FEE PAYMENT PROCEDURE	TEXT : 7.5 YR SURCHARGE - LATE PMT W/IN 6 MO, SMALL ENTITY (ORIGINAL EVENT CODE: M2555)
US7632408 BA	20171121	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US7632408 BA	20280719	PEXP		Calculated	

				Patent Term Expiry (PTA 22 days)	
US8240950 BA	20120814	LSGT	+	granted / extensions (spc, cpc, pte)	
US8240950 BA	20090910	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : PLASTIC TUBING INDUSTRIES, INC., FLORIDA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:EVERSON, DOUGLAS; REEL/FRAME:023211/0286 EFFECTIVE DATE : 20090821
US8240950 BA	20120725	LSGT	PAT1	Patented Case	
US8240950 BA	20120725	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US8240950 BA	20151125	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US8240950 BA	20161208	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ENVIRONMENTAL CONSERVATION SOLUTIONS, LLC, FLORIDA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:PLASTIC TUBING INDUSTRIES, INC.; REEL/FRAME:040604/0776 EFFECTIVE DATE : 20161207
US8240950 BA	20200204	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US8240950 BA	20300730	PEXP		Calculated Patent Term Expiry (PTA 343 days)	
US8753036 BA	20140617	LSGT	+	granted / extensions (spc, cpc, pte)	
US8753036 BA	20140528	LSGT	PAT1	Patented Case	
US8753036 BA	20140528	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US8753036 BA	20140818	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : PLASTIC TUBING INDUSTRIES, INC., FLORIDA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:EVERSON, DOUGLAS G.; REEL/FRAME:033551/0724 EFFECTIVE DATE : 20140814
US8753036 BA	20161208	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ENVIRONMENTAL CONSERVATION SOLUTIONS, LLC, FLORIDA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:PLASTIC TUBING INDUSTRIES, INC.; REEL/FRAME:040604/0776 EFFECTIVE DATE : 20161207
US8753036 BA	20171121	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US8753036 BA	20320813	PEXP		Calculated Patent Term Expiry	

Title: DEVICE FOR AVERAGING and nitrite denitrification SEWAGE (Machine translation)

Abstract: Source: RU77266U

Machine translation: (Claim 1) Device for averaging and nitrification-denitrification of wastewater containing linking of sections (containers) in which **anaerobic** and aerobic conditions, biomass carriers, air bubblers (aerators) for mixing of displacements, mechanical or hydraulic agitators, the input pipe (collector), pump for waste water for further **purification**, recycling lines of active biomass, wherein the biomass carriers are placed in the bottom zone of constant during the operation of sections (tanks) equalization, in the sections installed submersible partitions separating the working volumes of a number of consecutive cells mixing wastewater and prevent the direct inflow of water to be treated, avoiding blocks bionositelya at level fluctuations during operation. [IMAGE]

Classifications:

International (IPC 8-9): C02F3/00 (Advanced/Invention);
C02F3/00 (Core/Invention)

Family:

Publication number	Publication date	Application number	Application date
 RU77266 U1	20081020	RU20080122154U	20080602

Priority:

RU20080122154U 20080602

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
RU77266 U1	20081020	LSGT	+	granted / extensions (spc, cpc, pte)	
RU77266 U1	20130327	LSLE	-MM1K	UTILITY MODEL HAS BECOME INVALID (NON-PAYMENT OF FEES)	EFFECTIVE DATE : 20120603
RU77266 U1	20140510	LSRE	+NF1K	REINSTATEMENT OF UTILITY MODEL	EFFECTIVE DATE : 20140510
RU77266 U1	20170327	LSLE	-MM1K	UTILITY MODEL HAS BECOME INVALID (NON-PAYMENT OF FEES)	EFFECTIVE DATE : 20160603
RU77266 U1	20170623	LSRE	+NF1K	REINSTATEMENT OF UTILITY MODEL	EFFECTIVE DATE : 20170623
RU77266 U1	20160602	PEXP		Calculated Patent Term Expiry	

Title: METHOD AND APPARATUS FOR BIOLOGICALLY PURIFYING SEWAGE WHICH IS ORGANICALLY LOADED WITH SUBSTANCES DIFFICULT TO DECOMPOSE BIOLOGICALLY OR NOT DECOMPOSABLE BIOLOGICALLY

Abstract: Biologically purifying sewage which is organically loaded with substances that are difficult to decompose biologically or are not decomposable biologically has the substances that are difficult to decompose biologically or are not decomposable biologically separated and concentrated to concentrate, the concentrate preferably is treated physically and/or chemically and the treated or untreated concentrate is subjected to a biological transformation or, alternatively, the concentrate is separated from the sewage to be purified. The apparatus has a filtration collecting-basin serving for concentrating the substances that are difficult to decompose biologically or not decomposable biologically, and a membrane-filtering or nanofiltration device connected thereto, in which the substances that are difficult to decompose biologically or not decomposable biologically are retained and to which the sewage with the concentrated substances that are difficult to decompose biologically or not decomposable biologically is supplied on the inlet side, and from which the purified sewage is drawn off on the outlet side.

Classifications:

International (IPC 8-9): B01D61/00 C02F1/28 C02F1/32 C02F1/44 C02F1/52 C02F1/72 C02F1/78 C02F3/02 C02F3/12 C02F3/28 C02F9/00 (Advanced/Invention);

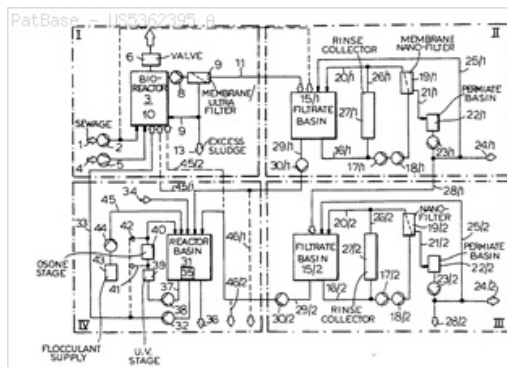
B01D61/00 C02F1/28 C02F1/32 C02F1/44 C02F1/52 C02F1/72 C02F1/78 C02F3/02 C02F3/12 C02F3/28 C02F9/00 (Core/Invention)

International (IPC 1-7): B01D61/00 B01D61/02 B01D61/58 C02F1/28 C02F1/32 C02F1/44 C02F1/52 C02F1/72 C02F1/78 C02F3/12 C02F3/28 C02F3/30 C02F9/00

CPC: Y02W10/15 C02F3/1231 C02F1/442 C02F1/444 C02F3/02

European: C02F1/44C C02F3/02 C02F3/12A9 M02F1/44D

US: 210/259 210/638 210/651



Family:

Publication number	Publication date	Application number	Application date
AT162501 E	19980215	AT19920104321T	19920312
DE59209142 D1	19980226	DE19925009142	19920312
DE9218559 U1	19940915	DE19920018559U	19920312
DK0503649 T3	19980914	DK19920104321T	19920312
EP0503115 A1	19920916	EP19910103860	19910313
EP0503649 A1	19920916	EP19920104321	19920312
EP0503649 B1	19980121	EP19920104321	19920312
ES2039337 T1	19931001	ES19920104321T	19920312
ES2039337 T3	19980301	ES19920104321T	19920312
GR3026259 T3	19980529	GR19980400437T	19980227
GR930300061 T1	19930630	GR19930300061T	19930630
JP3009535 B2	20000214	JP19920088240	19920313
JP5096299 A2	19930420	JP19920088240	19920313
US5362395 A	19941108	US19920851050	19920313

Priority:

EP19910103860 19910313 EP19920104321 19920312 EP19920104321 19920312

Probable Assignee: WEHRLE WERK AG

Assignee(s): (std): BEERURE WERK AG ; WEHRLE WERK AG

Assignee(s): WEHRLE WERK AG 79312 EMMENDINGEN DE ; WEHRLE WERK AKTIENGESELLSCHAFT ; WEHRLE WERK 79312 EMMENDINGEN DE AG

Inventor(s): (std): WAGNER FRIEDRICH DR ING ; WIENANDS HERBERT DIPL ING ; RAUTENBACH ROBERT PROF DR ING ; MELLIS RAINER DIPL ING ; MELLIS RAINER DIPL ING ; BUORUFUGANGU DORAU ; FURIIDORITSUHI BUAGUNAA ; HERUBERUTO BUIINANZU ; ROBERUTO RAUTENBATSUHA ; RAINAA MERISU ; DORAU WOLFGANG ; WAGNER FRIEDRICH ; WIENANDS HERBERT ; RAUTENBACH ROBERT ; MELLIS RAINER

Designated states: AT BE CH DE DK ES FR GB GR IT LI LU NL PT SE

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AT162501 E	19980215	LSGT	+	granted / extensions (spc, cpc, pte)	
AT162501 E	20071215	LSLE	-REN	CEASED DUE TO NON-PAYMENT OF THE ANNUAL FEE	
AT162501 E	20120312	PEXP		Calculated Patent Term Expiry	
DE59209142 D1	19990121	LSOP	-8363	OPPOSITION AGAINST THE PATENT	
DE59209142 D1	20001102	LSGT	+8365	FULLY VALID AFTER OPPOSITION PROCEEDINGS	

DE59209142 D1	20120312	LSLE	-R071	EXPIRY OF RIGHT	
DE9218559 U1	19940915	LSGT	+	granted / extensions (spc, cpc, pte)	
DE9218559 U1	20020312	PEXP		Calculated Patent Term Expiry	
DK0503649 T3	19980914	LSGT	+	granted / extensions (spc, cpc, pte)	
DK0503649 T3	20120312	PEXP		Calculated Patent Term Expiry	
EP0503115 A1	19920916	LSPB	+	published / reissued	
EP0503115 A1	19931201	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	EFFECTIVE DATE : 19930317
EP0503649 A1	19920916	LSPB	+	published / reissued	
EP0503649 A1	19930428	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 19930219
EP0503649 A1	19931110	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 19930922
EP0503649 A1	19980130	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP
EP0503649 A1	19980301	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : ES REF LEGAL EVENT CODE : FG2A REF DOCUMENT NUMBER : 2039337 COUNTRY OF REF DOCUMENT : ES KIND CODE OF REF DOCUMENT : T3 DESIGNATED STATE(S) :
EP0503649 A1	19981209	LSOP	-26	OPPOSITION FILED	PARTYTYPE : OPPONENT OPPONENT : KERAMCHEMIE GMBH EFFECTIVE DATE : 19981020
EP0503649 A1	19981209	LSOP	-26	OPPOSITION FILED	PARTYTYPE : OPPONENT OPPONENT : WABAG WASSTERTECHNISCHE ANLAGEN GMBH EFFECTIVE DATE : 19981021
EP0503649 A1	19990201	LSOP	-NLR1	NL: OPPOSITION HAS BEEN FILED WITH THE EPO	PARTYTYPE : OPPONENT REF COUNTRY CODE : EP OPPONENT : KERAMCHEMIE GMBH
EP0503649 A1	19990201	LSOP	-NLR1	NL: OPPOSITION HAS BEEN FILED WITH THE EPO	PARTYTYPE : OPPONENT REF COUNTRY CODE : EP OPPONENT : WABAG WASSTERTECHNISCHE ANLAGEN GMBH
EP0503649 A1	20000927	LSRE	+27O	OPPOSITION REJECTED	EFFECTIVE DATE : 20000414
EP0503649 A1	20001201	LSOP	NLR2	NL: DECISION OF OPPOSITION	REF COUNTRY CODE : EP
EP0503649 A1	20020308	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GR PAYMENT DATE : 20020308 YEAR OF FEE PAYMENT : 11
EP0503649 A1	20020313	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE PAYMENT DATE : 20020313 YEAR OF FEE PAYMENT : 11
EP0503649 A1	20020319	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PT PAYMENT DATE : 20020319 YEAR OF FEE PAYMENT : 11
EP0503649 A1	20020321	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DK PAYMENT DATE : 20020321 YEAR OF FEE PAYMENT : 11
EP0503649 A1	20020325	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : LU PAYMENT DATE : 20020325 YEAR OF FEE PAYMENT : 11

				[ANNOUNCED FROM NATIONAL OFFICE TO EPO]	
EP0503649 A1	20030312	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LU NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20030312
EP0503649 A1	20030313	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20030313
EP0503649 A1	20030331	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DK NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20030331
EP0503649 A1	20030930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PT NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20030930
EP0503649 A1	20031002	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GR NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20031002
EP0503649 A1	20031104	LSLE	-EUG	SE: EUROPEAN PATENT HAS LAPSED	REF COUNTRY CODE : EP
EP0503649 A1	20031231	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : PT REF LEGAL EVENT CODE : MM4A TEXT : LAPSE DUE TO NON-PAYMENT OF FEES EFFECTIVE DATE : 20030930
EP0503649 A1	20060221	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE PAYMENT DATE : 20060221 YEAR OF FEE PAYMENT : 15
EP0503649 A1	20060329	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT PAYMENT DATE : 20060329 YEAR OF FEE PAYMENT : 15
EP0503649 A1	20060331	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT PAYMENT DATE : 20060331 YEAR OF FEE PAYMENT : 15
EP0503649 A1	20071124	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20070312
EP0503649 A1	20071231	LSLE	-BERE	BE: LAPSED	PARTYTYPE : OWNER REF COUNTRY CODE : EP OWNER : *WEHRLE-WERK A.G. EFFECTIVE DATE : 20070331
EP0503649 A1	20080102	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20070331
EP0503649 A1	20090930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE	COUNTRY OF REF DOCUMENT : IT NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE

				[ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	FEES LAPSED DATE : 20070312
EP0503649 A1	20100430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH PAYMENT DATE : 20100319 YEAR OF FEE PAYMENT : 19
EP0503649 A1	20100430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES PAYMENT DATE : 20100316 YEAR OF FEE PAYMENT : 19
EP0503649 A1	20100630	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20100319 YEAR OF FEE PAYMENT : 19
EP0503649 A1	20100730	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20100414 YEAR OF FEE PAYMENT : 19
EP0503649 A1	20100831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL PAYMENT DATE : 20100330 YEAR OF FEE PAYMENT : 19
EP0503649 A1	20111001	LSDW	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R119 REF DOCUMENT NUMBER : 59209142 COUNTRY OF REF DOCUMENT : DE
EP0503649 A1	20111019	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : NL REF LEGAL EVENT CODE : V1 EFFECTIVE DATE : 20111001
EP0503649 A1	20111031	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : PL
EP0503649 A1	20111123	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	REF COUNTRY CODE : EP EFFECTIVE DATE : 20110312
EP0503649 A1	20111223	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : ST EFFECTIVE DATE : 20111130
EP0503649 A1	20120131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20110331
EP0503649 A1	20120131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LI NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20110331
EP0503649 A1	20120131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20111001
EP0503649 A1	20120131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20110331
EP0503649 A1	20120229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20110312

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EP0503649 A1	20120313	LSLE	REG	REFERENCE TO A NATIONAL CODE	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R071 REF DOCUMENT NUMBER : 59209142 COUNTRY OF REF DOCUMENT : DE
EP0503649 A1	20120423	LSLE	REG	REFERENCE TO A NATIONAL CODE	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : ES REF LEGAL EVENT CODE : FD2A EFFECTIVE DATE : 20120423
EP0503649 A1	20120430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF EXPIRATION OF PROTECTION LAPSED DATE : 20120313
EP0503649 A1	20120731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20110313
EP0503649 A1	20140430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20110531 YEAR OF FEE PAYMENT : 20
EP0503649 B1	19980121	LSGT	+	granted / extensions (spc, cpc, pte)	granted / extensions (spc, cpc, pte)	
EP0503649 B1	20120312	PEXP		Calculated Patent Term Expiry	Calculated Patent Term Expiry	
ES2039337 T1	19931001	LSPB	+	published / reissued	published / reissued	
ES2039337 T3	19980301	LSGT	+	granted / extensions (spc, cpc, pte)	granted / extensions (spc, cpc, pte)	
ES2039337 T3	19980301	LSGT	+FG2A	DEFINITIVE PROTECTION	DEFINITIVE PROTECTION	REF DOCUMENT NUMBER : 503649 COUNTRY OF REF DOCUMENT : ES
ES2039337 T3	20120312	PEXP		Calculated Patent Term Expiry	Calculated Patent Term Expiry	
GR3026259 T3	19980529	LSGT	+	granted / extensions (spc, cpc, pte)	granted / extensions (spc, cpc, pte)	
GR3026259 T3	20180227	PEXP		Calculated Patent Term Expiry	Calculated Patent Term Expiry	
GR930300061 T1	19930630	LSPB	+	published / reissued	published / reissued	
JP3009535 B2	20000214	LSGT	+	granted / extensions (spc, cpc, pte)	granted / extensions (spc, cpc, pte)	
JP3009535 B2	20041130	LSFE	+R250	RECEIPT OF ANNUAL FEES	RECEIPT OF ANNUAL FEES	TEXT : JAPANESE INTERMEDIATE CODE: R250
JP3009535 B2	20051115	LSFE	+R250	RECEIPT OF ANNUAL FEES	RECEIPT OF ANNUAL FEES	TEXT : JAPANESE INTERMEDIATE CODE: R250
JP3009535 B2	20061205	LSFE	+R250	RECEIPT OF ANNUAL FEES	RECEIPT OF ANNUAL FEES	TEXT : JAPANESE INTERMEDIATE CODE: R250
JP3009535 B2	20071211	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 9
JP3009535 B2	20081106	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 9
JP3009535 B2	20081111	LSFE	+FPAY	RENEWAL FEE	RENEWAL FEE	YEAR OF FEE PAYMENT : 10

JP3009535 B2	20091124	LSFE	+FPAY	PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE) RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 11
JP3009535 B2	20101202	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 11
JP3009535 B2	20101207	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 12
JP3009535 B2	20111203	LSLE	-LAPS	CANCELLATION BECAUSE OF NO PAYMENT OF ANNUAL FEES	
JP3009535 B2	20120313	PEXP		Calculated Patent Term Expiry	
US5362395 A	19941108	LSGT	+	granted / extensions (spc, cpc, pte)	
US5362395 A	19920313	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WEHRLE-WERK AG, GERMANY OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNORS:DORAU, WOLFGANG; WAGNER, FRIEDRICH; WIENANDS, HERBERT; AND OTHERS; REEL/FRAME:006084/0504; SIGNING DATES FROM 19911217 TO 19920225
US5362395 A	19941028	LSGT	PAT1	Patented Case	
US5362395 A	19941028	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US5362395 A	19980506	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US5362395 A	20020530	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US5362395 A	20060424	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US5362395 A	20120313	PEXP		Calculated Patent Term Expiry	

Title: METHOD AND EQUIPMENT FOR PROCESSING WASTE WATER CONTAINING SULPHIDES AND AMMONIUM

Abstract: The invention relates to a method for treating waste water containing sulphides and ammonium, in particular waste water from an urban or industrial origin or digestion feedbacks, condensates and lixiviates. The waste water is first subjected to an anoxic processing (1) in a free-culture biological manner, wherein, in a first step (1a), the organic carbon is essentially removed by heterotrophic bacteria and, during a second step (1b) separate from the first, the sulphides are oxidised in a biological manner by autotrophic bacteria with nitrites or nitrates reduction. The effluent from the second step (1b) is submitted to a free-culture aerobic biological treatment (2) for converting the ammonium into nitrates. The conjunction with a sequential aerobic biological reactor (9) compensates a potential nitrate deficit.

Classifications:

International (IPC 8-9): C02F3/00 C02F3/30

C02F9/14 (Advanced/Invention);

C02F101/10 C02F101/16 (Advanced/Non-invention);

C02F3/00 C02F3/30 C02F9/14 (Core/Invention)

International (IPC 1-7): C02F3/00

CPC: C02F3/006 C02F3/1263 C02F3/302 C02F3/345 C02F2101/101

C02F2101/16 C02F2209/005 C02F2209/06 C02F2209/08

C02F2209/15 C02F2209/20 C02F2209/26 C02F2209/40 C02F2209/44

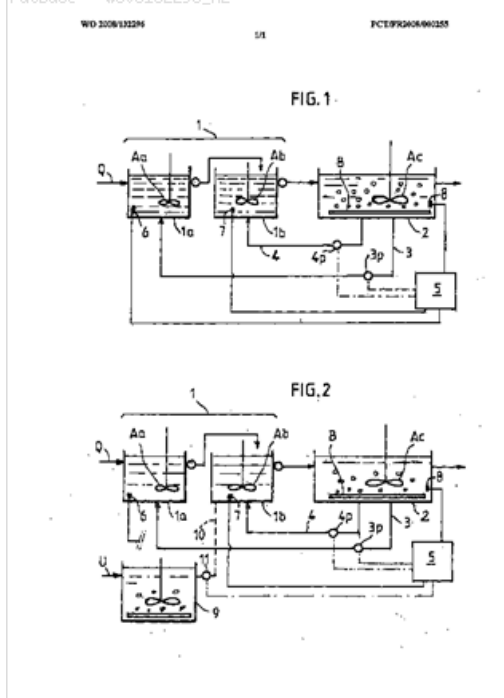
Y02W10/15

European: C02F3/00R C02F3/30D C02F3/34E M02F101/10A

M02F101/16 M02F209/00T M02F209/06 M02F209/08 M02F209/15

M02F209/20 M02F209/26 M02F209/40 M02F209/44 M02F3/12N8

PatBase - WO08132296_A2



Family:

Publication number	Publication date	Application number	Application date
AU2008244181 AA	20081106	AU20080244181	20080227
AU2008244181 BB	20120202	AU20080244181	20080227
CN101626983 A	20100113	CN200880006891	20080227
FR2913234 A1	20080905	FR20070001534	20070302
FR2913234 B1	20090508	FR20070001534	20070302
IN05442DN2009 A	20100416	IN2009DN05442	20090825
MX2009009315 A1	20090910	MX20090009315	20080227
WO08132296 A2	20081106	WO2008FR00255	20080227
WO08132296 A3	20090108	WO2008FR00255	20080227

Priority:

FR20070001534 20070302 WO2008FR00255 20080227

Probable Assignee: DEGREMONT SA

Assignee(s): (std): BARON MARYLENE ; DEGREMONT ; DEGREMONT SA ; GONZALES OSPINA ADRIANA

Assignee(s): DEGREMONT SOC ANONYME ; DEGREMONT SOCIETE ANONYME

Inventor(s): (std): GONZALES OSPINA ADRIANA ; BARON MARYLENE ; OSPINA ADRIANA GONZALES ; ADRIANA GONZALES OSPINA ; MARYLENE BARON

Inventor(s): ADRIANA GONZALES

Agent(s): DAVIES COLLISON CAVE; DAVIES COLLISON CAVE PTY LTD; IPAZ; MICHARDIERE BERNARD 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 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 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 PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU2008244181 AA	20081106	LSPB	+	published / reissued	
AU2008244181 BB	20120202	LSGT	+	granted / extensions (spc, cpc, pte)	
AU2008244181 BB	20120607	LSLE	-MK25	APPLICATION LAPSED REG. 22.2I(2) - FAILURE TO PAY ACCEPTANCE FEE	

AU2008244181 BB	20280227	PEXP		Calculated Patent Term Expiry	
CN101626983 A	20100113	LSPB	+	published / reissued	
CN101626983 A	20100113	LSPB	+C06	PUBLICATION	
CN101626983 A	20121205	LSDW	-C02	DEEMED WITHDRAWAL OF PATENT APPLICATION AFTER PUBLICATION (PATENT LAW 2001)	
FR2913234 A1	20080905	LSPB	+	published / reissued	
FR2913234 B1	20090508	LSGT	+	granted / extensions (spc, cpc, pte)	
FR2913234 B1	20160107	LSFE	+PLFP	FEE PAYMENT	YEAR OF FEE PAYMENT : 10
FR2913234 B1	20170307	LSFE	+PLFP	FEE PAYMENT	YEAR OF FEE PAYMENT : 11
FR2913234 B1	20180302	LSFE	+PLFP	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
FR2913234 B1	20190401	LSLE	-ST	NOTIFICATION OF LAPSE	
FR2913234 B1	20191129	LSLE	-ST	NOTIFICATION OF LAPSE	EFFECTIVE DATE : 20191106
FR2913234 B1	20270302	PEXP		Calculated Patent Term Expiry	
IN05442DN2009 A	20100416	LSPB	+	published / reissued	
MX2009009315 A1	20090910	LSPB	+	published / reissued	
MX2009009315 A1	20100831	LSRE	HH	CORRECTION OR CHANGE IN GENERAL	
MX2009009315 A1	20160331	LSWD	-FA	ABANDONMENT OR WITHDRAWAL	
WO08132296 A2	20081106	LSPB	+	published / reissued	
WO08132296 A2	20080227	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 200880006891.4 COUNTRY OF REF DOCUMENT : CN
WO08132296 A3	20090825	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 5442/DELNP/2009 COUNTRY OF REF DOCUMENT : IN
WO08132296 A3	20090901	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2008244181 COUNTRY OF REF DOCUMENT : AU
WO08132296 A3	20090902	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : MX/A/2009/009315 COUNTRY OF REF DOCUMENT : MX
WO08132296 A3	20090903	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO08132296 A3	20090924	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2008244181 COUNTRY OF REF DOCUMENT : AU DATE OF REF DOCUMENT : 20080227 KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO08132296 A3	20100407	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 08775605 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) :

Title: COMPOSITIONS AND METHODS FOR REMEDIATION OF SULFATE REDUCING PROKARYOTES

Abstract: Compositions and methods are provided for use in controlling souring and corrosion causing prokaryotes, such as SRP, by treating oil and gas field environments or treatment fluids with a newly identified bacterial strain ATCC Accession No. PTA-124262 as a self-propagating whole cell that produces an anti-SRP bacteriocin in situ. In another aspect, the methods use one or more toxic peptides or proteins isolated therefrom in methods to control unwanted prokaryotic growth in these environments.

Classifications:

International (IPC 8-9): A01N37/46 A01N63/00 A01N63/02 A01N63/27 A01P1/00 C02F1/50 C02F3/34 C07K14/21 C09K8/20 C09K8/524 C09K8/54 C12N1/20 C12P21/02 C12R1/385 E21B43/22 (Advanced/Invention); C12R1/385 (Advanced/Non-invention)

CPC: A01N37/46 A01N63/00 A01N63/10 C02F1/50 C02F3/34 C07K14/21 C12N1/20 C12R1/385

Family:

Publication number	Publication date	Application number	Application date
CA3069690 AA	20200110	CA20183069690	20180706
WO19014061 A1	20190117	WO2018US41066	20180706

Priority:

US20170531568P 20170712 WO2018US41066 20180706

Probable Assignee: DOW GLOBAL TECHNOLOGIES LLC

Assignee(s): (std): DOW GLOBAL TECHNOLOGIES LLC ; DDP SPECIALTY ELECTRONIC MAT US INC

Assignee(s): DDP SPECIALTY ELECTRONIC MATERIALS US INC ; JANES CHRISTOPHER ; MANNA KATHLEEN ; TOMLINSON IAN A ; THATIPELLI ABHIRAM ; SUMMER ELIZABETH J

Inventor(s): (std): MANNA KATHLEEN ; TOMLINSON IAN A ; THATIPELLI ABHIRAM ; JANES CHRISTOPHER ; SUMMER ELIZABETH J ; TOMLINSON IAN ; SUMMER ELIZABETH

Agent(s): QUINN THOMAS F JR; BAK MARY E 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 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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CA3069690 AA	20200110	LSPB	+	published / reissued	
WO19014061 A1	20190117	LSPB	+	published / reissued	
WO19014061 A1	20200110	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 3069690 COUNTRY OF REF DOCUMENT : CA
WO19014061 A1	20200114	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO19014061 A1	20200214	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2018746411 COUNTRY OF REF DOCUMENT : EP EFFECTIVE DATE : 20200212

Title: FILLING FOR PERCOLATING FILTERS FOR BIOLOGICAL WASTE WATER **PURIFICATION**

Abstract: A filling for a percolating filter for biological **purification** of waste water includes a plurality of flexible, irregularly touching, randomly arranged plastic strips up to 8 cm in width and several meters in length twisted together and suspended from a support over the height of the filter tank. The strips may have a maximum thickness of 30-100 μm and a minimum thickness of 10-60 μm , varying in such thicknesses over their width. The strips may be residue edge portion cuttings severed from the production of continuously produced sheet materials.

Classifications:

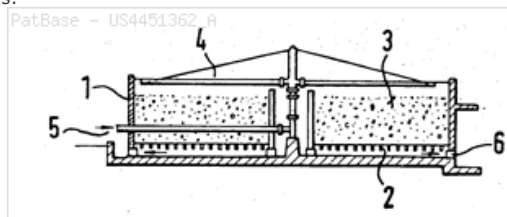
International (IPC 8-9): C02F3/04 C02F3/10 (Advanced/Invention);
C02F3/04 C02F3/10 (Core/Invention)

International (IPC 1-7): B01D39/04 C02F3/04

CPC: C02F3/10 Y02W10/15 Y10S261/72

European: C02F3/10

US: 210/150 210/505 261/DIG.72



Family:

Publication number	Publication date	Application number	Application date
AT7484 E	19840615	AT19810108100T	19811009
DE3047967 A1	19820715	DE19803047967	19801219
DE3047967 C2	19851212	DE19803047967	19801219
EP0056083 A1	19820721	EP19810108100	19811009
EP0056083 B1	19840516	EP19810108100	19811009
US4451362 A	19840529	US19830467258	19830217

Priority:

DE19803047967 19801219 US19810277114 19810625 EP19810108100 19811009

Probable Assignee: VON MEER WALTER DR

Assignee(s): (std): SCHOELLER FELIX JUN GMBH CO KG ; SCHOELLER F JUN GMBH CO KG

Assignee(s): VON MEER WALTER DR ; FELIX SCHOELLER JR ; FELIX SCHOELLER JR A CORP OF WEST GERMANY ; FELIX SCHOELLER JR GMBH AND CO ; FELIX SCHOELLER JR GMBH AND CO 4500 OSNABRUECK DE KG ; FELIX SCHOELLER JR GMBH AND CO KG ; FELIX SCHOELLER JR GMBH AND CO KG 4500 OSNABRUECK ; FELIX SCHOELLER JR GMBH AND CO KG 4500 OSNABRUECK DE

Inventor(s): (std): SPELSBERG HANS HUGO

Inventor(s): SPELSBERG HANS HUGO 4500 OSNABRUECK DE

Designated states: AT BE CH FR GB IT LI NL

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AT7484 E	19840615	LSGT	+	granted / extensions (spc, cpc, pte)	
AT7484 E	20010715	LSLE	-REN	CEASED DUE TO NON-PAYMENT OF THE ANNUAL FEE	
AT7484 E	20011009	PEXP		Calculated Patent Term Expiry	
DE3047967 A1	19820715	LSPB	+	published / reissued	
DE3047967 A1	19840112	LSSES	+8110	REQUEST FOR EXAMINATION PARAGRAPH 44	
DE3047967 C2	19851212	LSGT	+	granted / extensions (spc, cpc, pte)	
DE3047967 C2	19851212	LSGT	+D2	GRANT AFTER EXAMINATION	
DE3047967 C2	19860320	LSAS	8327	CHANGE IN THE PERSON/NAME/ADDRESS OF THE PATENT OWNER	PARTYTYPE : OWNER OWNER : MEER, WALTER VON, DIPL.-ING.DR., 4505 BAD IBURG, D
DE3047967 C2	19860605	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
EP0056083 A1	19820721	LSPB	+	published / reissued	
EP0056083 A1	19820929	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 19820719
EP0056083 B1	19840516	LSGT	+	granted / extensions (spc, cpc, pte)	
EP0056083 B1	19841231	LSAS	BECN	BE: CHANGE OF HOLDER'S NAME	REF COUNTRY CODE : EP EFFECTIVE DATE : 19840516
EP0056083 B1	19850206	LSAS	RAP2	RIGHTS OF A PATENT TRANSFERRED	PARTYTYPE : OWNER OWNER : VON MEER,

EP0056083 B1	19850517	LSAS	NLS	NL: ASSIGNMENTS OF EP-PATENTS	WALTER, DR., DIPL.-ING. PARTYTYPE : OWNER REF COUNTRY CODE : EP OWNER : DIPL.-ING. DR. WALTER VON MEER TE BAD IBURG, BONDS
EP0056083 B1	19850529	LSGT	+26N	NO OPPOSITION FILED	
EP0056083 B1	19850715	LSAS	REG	REFERENCE TO A NATIONAL CODE	PARTYTYPE : OWNER REF COUNTRY CODE : CH OWNER : DR. WALTER VON MEER REF LEGAL EVENT CODE : PUE
EP0056083 B1	19911031	LSFE	ITTA	IT: LAST PAID ANNUAL FEE	REF COUNTRY CODE : EP
EP0056083 B1	19990915	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 19990915 YEAR OF FEE PAYMENT : 19
EP0056083 B1	19990917	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 19990917 YEAR OF FEE PAYMENT : 19
EP0056083 B1	19991021	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT PAYMENT DATE : 19991021 YEAR OF FEE PAYMENT : 19
EP0056083 B1	19991021	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH PAYMENT DATE : 19991021 YEAR OF FEE PAYMENT : 19
EP0056083 B1	19991022	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE PAYMENT DATE : 19991022 YEAR OF FEE PAYMENT : 19
EP0056083 B1	19991027	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL PAYMENT DATE : 19991027 YEAR OF FEE PAYMENT : 19
EP0056083 B1	20001009	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20001009
EP0056083 B1	20001009	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20001009
EP0056083 B1	20001031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20001031
EP0056083 B1	20001031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20001031
EP0056083 B1	20001031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LI NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20001031
EP0056083 B1	20010430	LSLE	-BERE	BE: LAPSED	PARTYTYPE : OWNER REF COUNTRY CODE : EP OWNER : VON MEER WALTER EFFECTIVE DATE : 20001031
EP0056083 B1	20010501	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO	COUNTRY OF REF DOCUMENT : NL NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-

				EPO]	PAYMENT OF DUE FEES LAPSED DATE : 20010501
EP0056083 B1	20010530	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON- PAYMENT OF RENEWAL FEE	REF COUNTRY CODE : EP EFFECTIVE DATE : 20001009
EP0056083 B1	20010615	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : PL
EP0056083 B1	20010629	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON- PAYMENT OF DUE FEES LAPSED DATE : 20010629
EP0056083 B1	20010702	LSLE	-NLV4	NL: LAPSED OR ANULLED DUE TO NON-PAYMENT OF THE ANNUAL FEE	REF COUNTRY CODE : EP EFFECTIVE DATE : 20010501
EP0056083 B1	20010803	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : ST
EP0056083 B1	20011009	PEXP		Calculated Patent Term Expiry	
US4451362 A	19840529	LSGT	+	granted / extensions (spc, cpc, pte)	
US4451362 A	19830328	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : FELIX SCHOELLER, JR., GMBH & CO., KG, BURG GRETSCH OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR: SPELSBERG, HANS-HUGO; REEL/FRAME:004106/0241 EFFECTIVE DATE : 19830218
US4451362 A	19840329	LSGT	PAT1	Patented Case	
US4451362 A	19840329	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US4451362 A	19860522	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : VON MEER, WALTER DR., LAERAGGE NO. 7, D-4505 BAD I OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR: GMBH & CO., KG.; REEL/FRAME:004549/0666 EFFECTIVE DATE : 19860411
US4451362 A	19860522	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : VON MEER WALTER DR., GERMANY OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR: GMBH & CO., KG.; REEL/FRAME:004549/0666 EFFECTIVE DATE : 19860411
US4451362 A	19870603	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US4451362 A	19911112	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US4451362 A	19951012	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US4451362 A	20030217	PEXP		Calculated Patent Term Expiry	

Title: PROCESS FOR ANAEROBICALLY DEGRADING HIGHLY LOADED PROCESS WASTE WATERS

Abstract: The invention relates to a process for anaerobically degrading highly concentrated process waste waters as obtained particularly in the chemical industry, in paper mills and cellulose plants, fish-processing plants, and in the production and elimination of alcohol or the like, whereby the CSB-content may be up to 106 mg/l or more. This process comprises a putrefactive process which is induced in at least one decomposition tank at about 34 DEG C. by circulating normal sewage sludge, whereby upon start-up of the putrefactive process, a change to chemical process waste waters is carried out without adding communal sewage sludge. Subsequently, the sludge is withdrawn from the decomposition tank, flocculated, and returned to the external circulation for circulating the putrefactive sludge in the decomposition tank.

Classifications:

International (IPC 8-9): C02F1/00 C02F11/04 C02F3/00 C02F3/12 C02F3/28 (Advanced/Invention);

C02F1/00 C02F11/04 C02F3/00 C02F3/12 C02F3/28 (Core/Invention)

International (IPC 1-7): C02F11/04 C02F11/14 C02F3/00 C02F3/02 C02F3/22 C02F3/28

CPC: C02F1/006 C02F3/006 C02F3/1215 C02F3/28 C02F2103/22

C02F2209/02 C02F2209/04 C02F2209/05 C02F2209/06

C02F2209/225 Y02W10/15 Y10S210/919

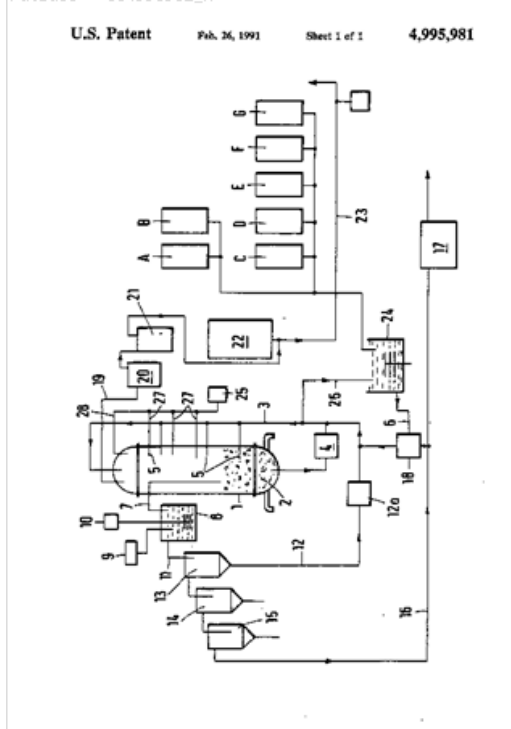
European: C02F1/00R C02F3/00R C02F3/12A4 C02F3/12D

C02F3/28 M02F103/22 M02F209/02 M02F209/04 M02F209/05

M02F209/06 M02F209/22G

US: 210/603 210/609 210/622 210/631 210/919

PatBase - US4995981_A



Family:

Publication number	Publication date	Application number	Application date
AT87281 E	19930415	AT19900101261T	19900123
CS9000383 A3	19920318	CS19900000383	19900126
CZ282685 B6	19970917	CS19900000383	19900126
DD291742 A5	19910711	DD19900337411	19900130
DE3902867 A1	19900802	DE19893902867	19890201
DE59001054 D1	19930429	DE19905001054	19900123
EP0381007 A1	19900808	EP19900101261	19900123
EP0381007 B1	19930324	EP19900101261	19900123
ES2041450 T3	19931116	ES19900101261T	19900123
HU212235 B	19960429	HU19900000152	19900116
HU71530 A2	19951228	HU19900000152	19900116
HU9000152 A0	19900528	HU19900000152	19900116
SK278249 B6	19960605	SK19900000383	19900126
US4995981 A	19910226	US19900469169	19900124

Priority:

DE19893902867 19890201 DE19905001054 19900123 EP19900101261 19900123

Probable Assignee: REIFLOCK ABWASSTECHNIK GMBH

Assignee(s): (std): REIFLOCK UMWELTTECH REICHMANN ; REIFLOCK UMWELTTECHNIK MARGOT ; REIFLOCK ABWASSTECHNIK GMBH ; REIFLOCK UMWELTTECHNIK REICHMA

Assignee(s): GOTT ERICH ; REIFLOCK ABWASSTECHNIK GMBH 7570 BADEN BADEN DE ; REIFLOCK UMWELTTECHNIK MARGOT REICHMANN ; REIFLOCK UMWELTTECHNIK MARGOT REICHMANN 7570 BADEN BADEN DE ; REIFLOCK UMWELTTECHNIK MARGOT REICHMANN RHEINSTR ; REIFLOCK UMWELTTECHNIK MARGOT REICHMANN DE ; REIFLOCK UMWELTTECHNIK REICHMANN

Inventor(s): (std): GOTT ERICH ; GOETT ERICH

Inventor(s): VERZICHT DES ERFINDERS AUF NENNUNG ; GOETT ERICH W 7630 LAHR DE ; GOETT ERICH DE

Designated states: AT BE CH DE ES FR GB GR IT LI LU NL SE

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AT87281 E	19930415	LSGT	+	granted / extensions (spc, cpc, pte)	

AT87281 E	20100123	PEXP		Calculated Patent Term Expiry	
CS9000383 A3	19920318	LSPB	+	published / reissued	
CZ282685 B6	19970917	LSGT	+	granted / extensions (spc, cpc, pte)	
CZ282685 B6	20100126	PEXP		Calculated Patent Term Expiry	
DD291742 A5	19910711	LSGT	+	granted / extensions (spc, cpc, pte)	
DD291742 A5	19950706	LSLE	-ENJ	CEASED DUE TO NON-PAYMENT OF RENEWAL FEE	
DD291742 A5	20080130	PEXP		Calculated Patent Term Expiry	
DE3902867 A1	19900802	LSPB	+	published / reissued	
DE3902867 A1	19900802	LSES	+OM8	SEARCH REPORT AVAILABLE AS TO PARAGRAPH 43 LIT. 1 SENTENCE 1 PATENT LAW	
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DE59001054 D1	19940421	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DE59001054 D1	20091119	LSLE	-8339	CEASED/NON-PAYMENT OF THE ANNUAL FEE	
EP0381007 A1	19900808	LSPB	+	published / reissued	
EP0381007 A1	19910227	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 19901224
EP0381007 A1	19920701	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 19920515
EP0381007 A1	19921028	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	PARTYTYPE : OWNER OWNER : REIFLOCK-ABWASSTECHNIK GMBH
EP0381007 A1	19931116	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : ES REF LEGAL EVENT CODE : FG2A REF DOCUMENT NUMBER : 2041450 COUNTRY OF REF DOCUMENT : ES KIND CODE OF REF DOCUMENT : T3 DESIGNATED STATE(S) :
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EP0381007 A1	19950131	LSGT	+EAL	SE: EUROPEAN PATENT IN FORCE IN SWEDEN	REF COUNTRY CODE : EP TEXT : 90101261.7
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EP0381007 A1	19980801	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 19980801
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EP0381007 A1	19981005	LSLE	-EUG	SE: EUROPEAN PATENT HAS LAPSED	REF COUNTRY CODE : EP TEXT : 90101261.7
EP0381007 A1	19981030	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : ST
EP0381007 A1	20000401	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : ES REF LEGAL EVENT CODE : FD2A EFFECTIVE DATE : 20000201
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EP0381007 B1	19930324	LSGT	+	granted / extensions (spc, cpc, pte)	
EP0381007 B1	20100123	PEXP		Calculated Patent Term Expiry	
ES2041450 T3	19931116	LSGT	+	granted / extensions (spc, cpc, pte)	
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HU212235 B	19960429	LSGT	+	granted / extensions (spc, cpc, pte)	
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HU212235 B	20100116	PEXP		Calculated Patent Term Expiry	
HU71530 A2	19951228	LSPB	+	published / reissued	

SK278249 B6	19960605	LSGT	+	granted / extensions (spc, cpc, pte)		
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US4995981 A	19910226	LSGT	+	granted / extensions (spc, cpc, pte)		
US4995981 A	19900124	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : REIFLOCK-UMWELTTECHNIK MARGOT REICHMANN, GERMANY OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:GOTT, ERICH; REEL/FRAME:005220/0657 EFFECTIVE DATE : 19900121	
US4995981 A	19940729	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4	
US4995981 A	19980825	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8	
US4995981 A	20030226	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES		
US4995981 A	20030326	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362		
US4995981 A	20030326	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	TEXT : PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362	
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US4995981 A	20100124	PEXP		Calculated Patent Term Expiry		

Title: A HIGH EFFICIENCY APPARATUS FOR PURIFYING WASTE WATER

Abstract: PURPOSE: A high efficiency wastewater treatment apparatus equipping an organic compound retention vessel is provided to reduce the congestion of the residual sludge and reduce the high efficiency **purification** process of the small scale furniture and large-size waste water treatment. CONSTITUTION: A high efficiency wastewater treatment apparatus includes an **anaerobic** tub(100) separating from the precipitation separator from the inorganic material and polymer precipitate, an aerobic aeration tank for decomposing the high molecular weight organic material processed at the **anaerobic** tank. The **anaerobic** settling tank for precipitating the processing water processed at the aerobic aeration tank. The **anaerobic** tank is perpendicularly connected to a hotwire pipe(128) in which the hotwire is laid under inside to a socket(127). A heat exchanger(125) is fixed to the reinforcing support and generates the high temperature.

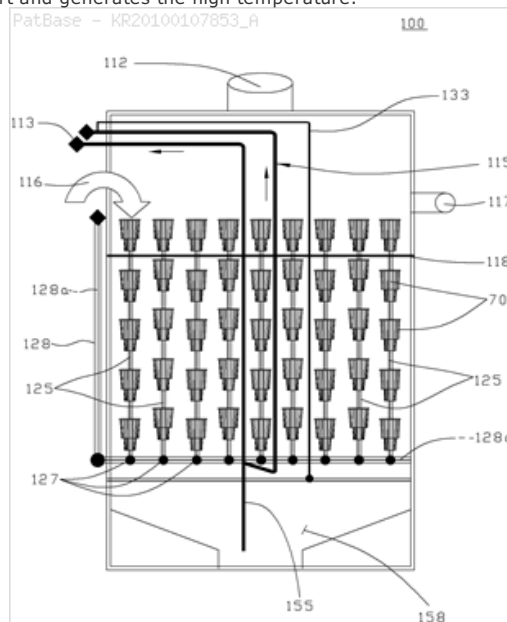
Classifications:

International (IPC 8-9): C02F3/06 C02F3/20

C02F3/30 (Advanced/Invention)

CPC: Y02W10/15 C02F3/30 C02F3/10 C02F3/20 C02F2103/20

C02F2201/002



Family:

Publication number	Publication date	Application number	Application date
KR101161165 B1	20120702	KR20090026171	20090327
KR20100107853 A	20101006	KR20090026171	20090327

Priority:

KR20090026171 20090327

Probable Assignee:

SHIM SOON TEAK

Assignee(s): (std):

SHIM SOON TEAK

Inventor(s): (std):

SHIM SOON TEAK

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
KR101161165 B1	20120702	LSGT	+	granted / extensions (spc, cpc, pte)	
KR101161165 B1	20090327	LSSES	A201	REQUEST FOR EXAMINATION	
KR101161165 B1	20150529	LSFE	FPAY	ANNUAL FEE PAYMENT	PAYMENT DATE : 20150601 YEAR OF FEE PAYMENT : 4
KR101161165 B1	20160523	LSFE	FPAY	ANNUAL FEE PAYMENT	PAYMENT DATE : 20160523 YEAR OF FEE PAYMENT : 5
KR101161165 B1	20170725	LSFE	FPAY	ANNUAL FEE PAYMENT	PAYMENT DATE : 20170725 YEAR OF FEE PAYMENT : 6
KR101161165 B1	20180626	LSLE	-LAPS	LAPSE DUE TO UNPAID ANNUAL FEE	
KR101161165 B1	20290327	PEXP		Calculated Patent Term Expiry	
KR20100107853 A	20101006	LSPB	+	published / reissued	
KR20100107853 A	20110118	LSSES	-E902	NOTIFICATION OF REASON FOR REFUSAL	
KR20100107853 A	20110830	LSRV	-E90F	NOTIFICATION OF REASON FOR FINAL REFUSAL	

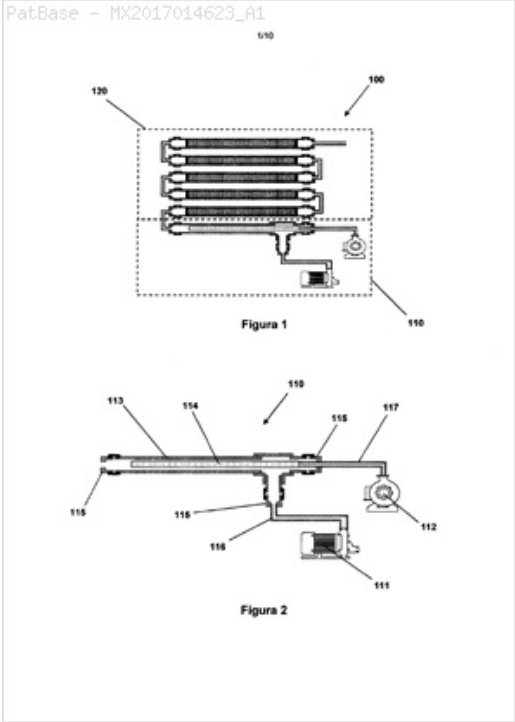
KR20100107853 A	20120423	LSGT	+E701	DECISION TO GRANT OR REGISTRATION OF PATENT RIGHT
KR20100107853 A	20120625	LSGT	+GRNT	WRITTEN DECISION TO GRANT

Title: TUBULAR SYSTEM WITH BIOFILMS SUPPORTED IN CARTRIDGES OF NON-WOVEN MATERIALS FIBERS FOR WASTEWATER TREATMENT.

Abstract: The present disclosure is related to the wastewater treatment, as well as the tubular system for wastewater treatment that comprises an aeration module that includes an air diffuser powered by a regenerative blower. The water to be treated is supplied to the aeration module of the tubular system by means of a pump and a reaction module interconnected to the aeration module, containing a biological growth cartridge presenting a roll arrangement in alternating layers of a support medium and nonwoven material. The system of the present invention is mainly based on the aerobic/anoxic biological degradation of the pollutants dissolved in the wastewater; the system is easy to operate, with low instrumentation and control requirements; suitable for residential applications, for urban and rural communities, as well as for industries that require wastewater treatment.

Classifications:

International (IPC 8-9): C02F3/00 C02F3/04 C02F3/10 C02F3/12 C02F9/00 (Advanced/Invention)



Family:

Publication number	Publication date	Application number	Application date
MX2017014623 A1	20190516	MX20170014623	20171115

Priority:

MX20170014623 20171115

Probable Assignee: UNIV MEXICO NAC AUTONOMA

Assignee(s): (std): UNIV MEXICO NAC AUTONOMA ; UNIV NACIONAL AUTONOMA DE MEXICO

Assignee(s): UNIVERSIDAD NACIONAL AUTONOMA DE MEXICO

Inventor(s): (std): ALFONSO DURAN MORENO ; SERGIO ADRIAN GARCIA GONZALEZ

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
MX2017014623 A1	20190516	LSPB	+	published / reissued	

Title: APARTMENT-SHAPED **ANAEROBIC** DIGESTER FOR PRODUCING BIOGAS

Abstract: Disclosed herein is an **anaerobic** digester. More specifically, disclosed is an apartment-shaped **anaerobic** digester configured to include a first input reactor 3 into which livestock wastewater or food waste (hereinafter, 'inflow') is introduced; a second input reactor 4 into which the inflow passing through the first input reactor is introduced; a first region 5, a second region 6, a third region 7, and a fourth region 8 of an **anaerobic** digestion reactor designed for the inflow passing through the second input reactor 4 to perform methane fermentation in a first-in and first-out order to produce and transfer biogas simultaneously into the next **anaerobic** digestion region; an inlet pipe 41 in a lower layer portion of the fourth region 8 of the **anaerobic** digestion reactor, into which sludge liquid is drawn in from the lower layer; an inlet pipe 42 in an upper layer portion of the fourth region of the **anaerobic** digestion reactor, into which activated liquid is drawn in from the upper layer; a biogas capturing device which is connected to a gas layer in the fourth region 8 of the **anaerobic** digestion reactor; a first heat exchange 2 tube provided inside the first input reactor 3 to allow the sludge liquid drawn in from the inlet pipe 41 in the lower layer portion to perform heat exchange with a new inflow; a first region 11, a second region 12, a third region 13, and a fourth region 14 of a subsequent treatment reactor provided on the upper layer of the **anaerobic** digestion reactor, to allow the sludge liquid whose heat exchange is completed to be introduced in a first-in and first-out order, and to treat gas odor components generated from the sludge liquid; and a liquid-composting reactor in which the emitted sludge whose odor components have been removed is stored.

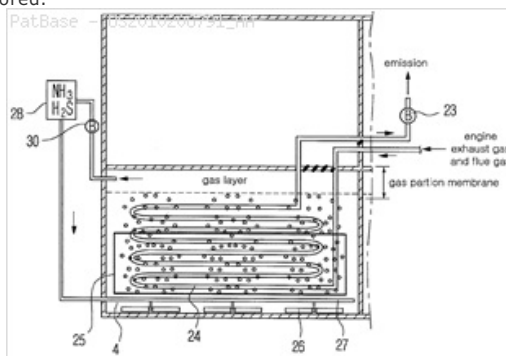
Classifications:

International (IPC 8-9): B01D53/14 B01D53/18 B01D53/38 B01D53/77 B09B3/00 C02F1/58 C02F1/72 C02F103/20 C02F11/04 C02F3/28 C02F3/34 C05F3/06 C05F9/02 C05G5/00 C12M1/107 C12M1/113 C12R1/01 (Advanced/Invention); C02F103/20 C02F11/04 C02F3/28 C12R1/01 (Advanced/Non-invention); C02F11/04 C02F3/28 C12M1/107 (Core/Invention)

CPC: C12P5/023 C02F2103/20 C02F2209/02 C02F2303/02 C12M21/04 C12M27/20 C12M41/18 C02F3/282 C02F3/286 C02F2103/32 C02F2209/04 C02F2209/06 C12M23/36 C12M29/06 Y02E50/343 Y02W10/12 Y02W30/47

European: C02F3/28H C02F3/28S C12M21/04 C12M23/36 C12M27/20 C12M29/06 C12M41/18 C12P5/02B M02F103/20 M02F103/32 M02F209/02 M02F209/04 M02F209/06 M02F303/02 Y02E50/34B

US: 210/151 210/175 210/176 210/176S 210/259 210/603 210/612 210/631 210/97 423/237 423/243.01

**Family:**

Publication number	Publication date	Application number	Application date
CN101805689 A	20100818	CN201010110108	20100220
CN101805689 B	20141231	CN201010110108	20100220
DE602010025005 D1	20150716	DE201060025005T	20100216
EP2248886 A2	20101110	EP20100153748	20100216
EP2248886 A3	20130925	EP20100153748	20100216
EP2248886 B1	20150603	EP20100153748	20100216
JP2010188340 A2	20100902	JP20100026595	20100209
JP5197646 B2	20130515	JP20100026595	20100209
KR100936540 B1	20100113	KR20090012435	20090216
US2010206791 AA	20100819	US20100705859	20100215
US8298424 BB	20121030	US20100705859	20100215

Priority:

KR20090012435 20090216 EP20100153748 20100216

Probable Assignee: LEE SANG BUM

Assignee(s): (std): BUM LEE SANG ; LEE KE HO ; LEE SANG BUM ; LI XIANGFAN

Assignee(s): LEE SANG BUM CHUNGCHEONGBUK DO

Inventor(s): (std): BUM LEE SANG ; HO LEE KE ; LEE KE HO ; LEE SANG BUM

Agent(s): RGC JENKINS AND CO; JACOB REUBEN ELLIS; INTELLECTUAL PROPERTY GROUP FREDRIKSON AND BYRON PA; FREDRIKSON AND BYRON PA

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 MT NL NO PL PT RO RS SE SI SK SM TR

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN101805689 A	20100818	LSPB	+	published / reissued	
CN101805689 A	20100818	LSPB	+C06	PUBLICATION	
CN101805689 B	20141231	LSGT	+	granted / extensions (spc, cpc, pte)	
CN101805689 B	20141231	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN101805689 B	20180313	LSLE	-CF01	TERMINATION OF PATENT RIGHT DUE TO NON-PAYMENT OF ANNUAL FEE	
CN101805689 B	20300220	PEXP		Calculated Patent Term Expiry	

EP2248886 A2	20101110	LSPB	+	published / reissued	
EP2248886 A3	20131120	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20131008
EP2248886 A3	20150114	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	EFFECTIVE DATE : 20141217
EP2248886 B1	20150603	LSGT	+	granted / extensions (spc, cpc, pte)	
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EP2248886 B1	20150615	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP
EP2248886 B1	20150715	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : FG4D
EP2248886 B1	20150715	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : REF REF DOCUMENT NUMBER : 729934 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20150715
EP2248886 B1	20150716	LSPB	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R096 REF DOCUMENT NUMBER : 602010025005 COUNTRY OF REF DOCUMENT : DE
EP2248886 B1	20151015	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : MK05 REF DOCUMENT NUMBER : 729934 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20150603
EP2248886 B1	20151030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150603
EP2248886 B1	20151030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150603
EP2248886 B1	20151030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NO NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150903
EP2248886 B1	20151030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : HR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150603
EP2248886 B1	20151030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL	COUNTRY OF REF DOCUMENT : FI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE

				OFFICE TO EPO]	FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150603
EP2248886 B1	20151125	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : LT REF LEGAL EVENT CODE : MG4D
EP2248886 B1	20151130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150603
EP2248886 B1	20151130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150904
EP2248886 B1	20151130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BG NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150903
EP2248886 B1	20151130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LV NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150603
EP2248886 B1	20160125	LSFE	REG	REFERENCE TO A NATIONAL CODE	COUNTRY OF REF DOCUMENT : FR REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 7
EP2248886 B1	20160129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : EE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150603
EP2248886 B1	20160229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CZ NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150603
EP2248886 B1	20160229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SK NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150603
EP2248886 B1	20160229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IS NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20151003
EP2248886 B1	20160229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PL NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT

				INFORMATION FROM NATIONAL OFFICE TO EPO]	A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150603
EP2248886 B1	20160229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PT NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20151006
EP2248886 B1	20160229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : RO NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20150603
EP2248886 B1	20160304	LSRE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R097 REF DOCUMENT NUMBER : 602010025005 COUNTRY OF REF DOCUMENT : DE
EP2248886 B1	20160429	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150603
EP2248886 B1	20160429	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DK NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150603
EP2248886 B1	20160429	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20160209 YEAR OF FEE PAYMENT : 7
EP2248886 B1	20160511	LSGT	+26N	NO OPPOSITION FILED	EFFECTIVE DATE : 20160304
EP2248886 B1	20160531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20160229
EP2248886 B1	20160531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SI NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150603
EP2248886 B1	20160531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20160125 YEAR OF FEE PAYMENT : 7
EP2248886 B1	20160531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20160210 YEAR OF FEE PAYMENT : 7
EP2248886 B1	20160930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MC NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150603

EP2248886 B1	20160930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LU NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20160216
EP2248886 B1	20160930	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : PL
EP2248886 B1	20161031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20160229
EP2248886 B1	20161031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LI NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20160229
EP2248886 B1	20161130	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : MM4A
EP2248886 B1	20161230	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150603
EP2248886 B1	20170131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20160216
EP2248886 B1	20170630	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150603
EP2248886 B1	20170630	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150603
EP2248886 B1	20170831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MT NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150603
EP2248886 B1	20170901	LSDW	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R119 REF DOCUMENT NUMBER : 602010025005 COUNTRY OF REF DOCUMENT : DE
EP2248886 B1	20171025	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	REF COUNTRY CODE : EP EFFECTIVE DATE : 20170216
EP2248886 B1	20171201	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : ST EFFECTIVE DATE : 20171031

EP2248886 B1	20180131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20170228
EP2248886 B1	20180131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20170901
EP2248886 B1	20180228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20170216
EP2248886 B1	20180531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SM NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150603
EP2248886 B1	20180531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : HU NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT; INVALID AB INITIO LAPSED DATE : 20100216
EP2248886 B1	20180531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CY NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150603
EP2248886 B1	20180629	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : TR NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150603
EP2248886 B1	20180629	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MT NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20160229
EP2248886 B1	20180629	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MK NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150603
EP2248886 B1	20300216	PEXP		Calculated Patent Term Expiry	
JP2010188340 A2	20120111	LSSE	-A131	NOTIFICATION OF REASONS FOR REFUSAL	TEXT : JAPANESE INTERMEDIATE CODE: A131 EFFECTIVE DATE : 20120110
JP2010188340 A2	20120410	LSRE	A521	WRITTEN AMENDMENT	TEXT : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20120409
JP2010188340 A2	20130110	LSGT	+TRDD	DECISION OF GRANT OR REJECTION WRITTEN	

JP2010188340 A2	20130116	LSGT	+A01	WRITTEN DECISION TO GRANT A PATENT OR TO GRANT A REGISTRATION (UTILITY MODEL)	TEXT : JAPANESE INTERMEDIATE CODE: A01 EFFECTIVE DATE : 20130115
JP2010188340 A2	20130214	LSFE	+A61	FIRST PAYMENT OF ANNUAL FEES (DURING GRANT PROCEDURE)	TEXT : JAPANESE INTERMEDIATE CODE: A61 EFFECTIVE DATE : 20130205
JP2010188340 A2	20130215	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 3
JP2010188340 A2	20130215	LSGT	+R150	CERTIFICATE OF PATENT OR REGISTRATION OF UTILITY MODEL	TEXT : JAPANESE INTERMEDIATE CODE: R150
JP5197646 B2	20130515	LSGT	+	granted / extensions (spc, cpc, pte)	
JP5197646 B2	20130117	LSGT	+A01	特許査定書 (Decision of patent grant)	
JP5197646 B2	20130212	LSFE	R100	特許料納付書 (Patent fee payment form)	
JP5197646 B2	20160128	LSFE	R20	特許料納付書 (Patent fee payment form)	
JP5197646 B2	20160202	LSFE	+R250	RECEIPT OF ANNUAL FEES	TEXT : JAPANESE INTERMEDIATE CODE: R250
JP5197646 B2	20170215	LSLE	-LAPS	CANCELLATION BECAUSE OF NO PAYMENT OF ANNUAL FEES	
JP5197646 B2	20300209	PEXP		Calculated Patent Term Expiry	
KR100936540 B1	20100113	LSGT	+	granted / extensions (spc, cpc, pte)	
KR100936540 B1	20090216	LSSES	A201	REQUEST FOR EXAMINATION	
KR100936540 B1	20090224	LSSES	A302	REQUEST FOR ACCELERATED EXAMINATION	
KR100936540 B1	20090520	LSSES	-E902	NOTIFICATION OF REASON FOR REFUSAL	
KR100936540 B1	20091016	LSRV	-E90F	NOTIFICATION OF REASON FOR FINAL REFUSAL	
KR100936540 B1	20091030	LSGT	+E701	DECISION TO GRANT OR REGISTRATION OF PATENT RIGHT	
KR100936540 B1	20100105	LSGT	+GRNT	WRITTEN DECISION TO GRANT	
KR100936540 B1	20130102	LSFE	FPAY	ANNUAL FEE PAYMENT	PAYMENT DATE : 20130102 YEAR OF FEE PAYMENT : 4
KR100936540 B1	20140106	LSFE	FPAY	ANNUAL FEE PAYMENT	PAYMENT DATE : 20140106 YEAR OF FEE PAYMENT : 5
KR100936540 B1	20150105	LSFE	FPAY	ANNUAL FEE PAYMENT	PAYMENT DATE : 20150106 YEAR OF FEE PAYMENT : 6
KR100936540 B1	20151218	LSFE	FPAY	ANNUAL FEE PAYMENT	PAYMENT DATE : 20151221 YEAR OF FEE PAYMENT : 7
KR100936540 B1	20170605	LSFE	FPAY	ANNUAL FEE PAYMENT	PAYMENT DATE : 20170607 YEAR OF FEE PAYMENT : 8
KR100936540 B1	20180103	LSFE	FPAY	ANNUAL FEE PAYMENT	PAYMENT DATE : 20180104 YEAR OF FEE PAYMENT : 9
KR100936540 B1	20190106	LSLE	-LAPS	LAPSE DUE TO UNPAID ANNUAL FEE	
KR100936540 B1	20290216	PEXP		Calculated Patent Term Expiry	
US2010206791 AA	20100819	LSPB	+	published / reissued	

US2010206791 AA	20121010	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US8298424 BB	20121030	LSGT	+	granted / extensions (spc, cpc, pte)	
US8298424 BB	20100216	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : LEE, SANG BUM, KOREA, REPUBLIC OF OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:LEE, SANG BUM; LEE, KE HO; REEL/FRAME:024001/0568 EFFECTIVE DATE : 20100201
US8298424 BB	20121010	LSGT	PAT1	Patented Case	
US8298424 BB	20160413	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US8298424 BB	20310130	PEXP		Calculated Patent Term Expiry (PTA 349 days)	

Title: METHOD FOR **PURIFICATION** TREATMENT OF ENVIRONMENTAL POLLUTANT

Abstract: The present invention provides a method of biological treatment for purifying an environmental pollutant utilizing microorganisms, wherein the pollutant is efficiently concentrated to a high concentration but exerts substantially no effect on the biological activity of the microorganisms used to biodegrade the pollutant, so that the pollutant are purified (assimilated or degraded) effectively. The present invention also provides a microbial treatment agent useful for the **purification** treatment of an environmental pollutant. Specifically stated, the method for **purification** treatment of the present invention can be carried out by making an environmental pollutant and microorganisms to coexist with each other as incorporated in a microorganism-produced polymer. The microbial treatment agent of the present invention comprises microorganisms incorporated in a microorganism-produced polymer.

Classifications:

International (IPC 8-9): B09B3/00 B09C1/10 C02F3/00 C02F3/10 C02F3/34 C12N1/00 C12N1/20 C12N11/04 C12N11/10 C12S5/00 C12S9/00 (Advanced/Invention); C12R1/01 (Advanced/Non-invention); B09B3/00 B09C1/10 C02F3/00 C02F3/10 C02F3/34 C12N1/00 C12N1/20 C12N11/00 C12S5/00 C12S9/00 (Core/Invention)

International (IPC 1-7): B09B3/00 C02F3/00 C02F3/34 C12N1/00 C12N1/20 C12N11/04 C12N11/10 C12R1/01 C12R1/06 C12R1/07 C12R1/38 C12R1/41 C12S13/00

CPC: Y02W10/15 C02F3/108 B09C1/10 C02F3/34 C02F2101/30 C02F2101/363

European: B09C1/10 C02F3/10K6 C02F3/34 M02F101/30 M02F101/36B

US: 210/601 435/177 435/178 435/182 435/262 435/262.5

ダイオキシン	ダイオキシン包括前 (ng/g)	ダイオキシン包括後 (ng/g)	
		微生物包括あり	微生物非包括
T ₄ CDDs	1.7	1.3	1.6
P ₄ CDDs	2.9	1.4	2.1
H ₄ CDDs	2.3	1.9	2.1
H ₇ CDDs	2.2	0.9	1.5
H ₈ CDDs	1.9	0.5	1.1
全PCDDs	11.0	6.0	8.4

Family:

Publication number	Publication date	Application number	Application date
JP2001225095 A2	20010821	JP20000374176	20001208
US2001027947 AA	20011011	US20000731863	20001208
US6753179 BB	20040622	US20000731863	20001208

Priority:

JP19990349426 19991208 JP20000374176 20001208

Probable Assignee: C P R CO LTD

Assignee(s): (std): ALLMIGHTY CO LTD ; ALLMIGHTY KK ; TSUCHIYA AKIHITO

Assignee(s): ALLMIGHTY CO ; C P R CO LTD

Inventor(s): (std): TSUCHIYA AKIHITO ; TSUCHIYA AKITO

Inventor(s): AKIHITO TSUCHIYA

Legal status (INPADOC)

[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
JP2001225095 A2	20070714	LSAS	A711	NOTIFICATION OF CHANGE IN APPLICANT	TEXT : JAPANESE INTERMEDIATE CODE: A711 EFFECTIVE DATE : 20070713
JP2001225095 A2	20070726	LSSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	TEXT : JAPANESE INTERMEDIATE CODE: A621 EFFECTIVE DATE : 20070725
JP2001225095 A2	20070811	LSRE	A521	WRITTEN AMENDMENT	TEXT : JAPANESE INTERMEDIATE CODE: A821 EFFECTIVE DATE : 20070713
JP2001225095 A2	20070908	LSRE	A521	WRITTEN AMENDMENT	TEXT : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20070907
JP2001225095 A2	20081210	LSWD	-A761	WRITTEN WITHDRAWAL OF APPLICATION	TEXT : JAPANESE INTERMEDIATE CODE: A761 EFFECTIVE DATE : 20081209
US2001027947 AA	20011011	LSPB	+	published / reissued	
US6753179 BB	20040622	LSGT	+	granted / extensions (spc, cpc, pte)	
US6753179 BB	20001208	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ALLMIGHTY CO., LTD., JAPAN OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:TSUCHIYA, AKIHITO; REEL/FRAME:011350/0097 EFFECTIVE DATE : 20001128
US6753179 BB	20070720	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : C-P-R-CO., LTD., JAPAN OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:ALLMIGHTY CO.,

LTD.;
REEL/FRAME:019580/0893
EFFECTIVE DATE : 20070626

US6753179 BB	20080622	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US6753179 BB	20080721	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US6753179 BB	20080721	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	TEXT : PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362
US6753179 BB	20080812	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 20080622
US6753179 BB	20210214	PEXP		Calculated Patent Term Expiry (PTA 68 days)	

Title: METHOD FOR IMPROVING A WASTEWATER **PURIFICATION** PROCESS

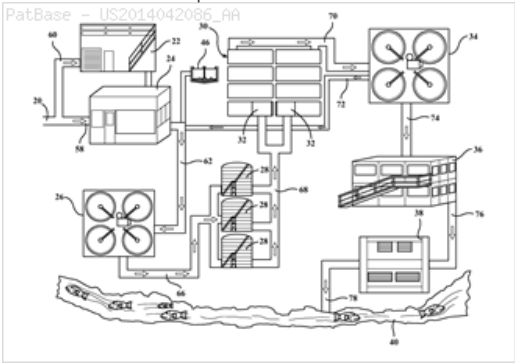
Abstract: The present invention relates to a method for improving a wastewater **purification** process for a wastewater stream containing organic materials, raw sludge, a plurality of mercaptans, grit and grease wherein the raw sludge is thickened in the wastewater stream by injecting polymers. The method includes a step of injecting an additive agent prior to thickening the raw sludge to reduce odor produced by the organic materials and the mercaptans.

Classifications:

International (IPC 8-9): C02F1/68 C02F3/30 (Advanced/Invention)

CPC: C02F1/68 C02F1/32 C02F3/301 C02F3/302 C02F9/00
C02F2101/32 C02F2101/40 C02F2303/02

US: 210/605 210/749 210/757



Family:

Publication number	Publication date	Application number	Application date
US2014042086 AA	20140213	US20130961541	20130807

Priority:

US20120680574P 20120807 US20130961541 20130807

Probable Assignee: KRESS RON
Assignee(s): (std): KRESS RON ; LIONAS NICK ; WEBER DAN
Inventor(s): (std): KRESS RON ; LIONAS NICK ; WEBER DAN

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US2014042086 AA	20140213	LSPB	+	published / reissued	
US2014042086 AA	20170315	LSES	NFA1	Non Final Action Mailed	
US2014042086 AA	20170829	LSES	ADV1	Advisory Action Mailed	
US2014042086 AA	20180213	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	

Title: PHOSPHORUS PRECIPITATION AND MEMBRANE FLUX IN MEMBRANE BIOREACTORS

Abstract: The present invention relates to a composition for treatment of wastewaters in a membrane bioreactor comprising a mixture of inorganic coagulants and organic water soluble polymer(s), wherein the inorganic coagulants are selected from iron and/or aluminium containing compounds and the organic water soluble polymers are selected from the group consisting of anionic, cationic, nonionic polymers, polysaccharides and polyphenolic compounds and any combination thereof. The present invention further relates to a method for treating of wastewaters in a membrane bioreactor, and uses thereof.

Classifications:

International (IPC 8-9): B01D21/01 B01D65/08 C02F1/44 C02F1/52 C02F1/56 C02F3/12 (Advanced/Invention); C02F101/10 (Advanced/Non-invention)

International (IPC 1-7): B01D65/08 C02F1/44 C02F1/52 C02F1/56 C02F3/12

CPC: C02F1/444 Y02W10/15 B01D65/08 B01D2321/168 C02F1/5245 C02F1/5263 C02F1/56 C02F3/1268 C02F3/1273 C02F2101/105

US: 1/1 210/631

PatBase - US2018354824_AA

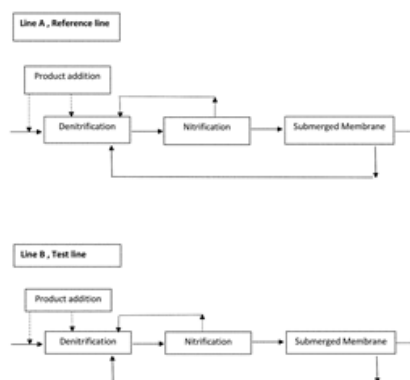


Fig 1

Family:

Publication number	Publication date	Application number	Application date
BR112018010612 A2	20181113	BR20181110612	20161122
CN108883955 A	20181123	CN201680079083	20161122
EP3380439 A1	20181003	EP20160798523	20161122
JP2018535093 T2	20181129	JP20180527176T	20161122
US2018354824 AA	20181213	US20160779425	20161122
US10570036 BB	20200225	US20160779425	20161122
WO17089330 A1	20170601	WO2016EP78388	20161122

Priority:

SE20150051546 20151127 WO2016EP78388 20161122

Probable Assignee: KEMIRA OYJ

Assignee(s): (std): KEMIRA OYJ

Inventor(s): (std): AZARNOUSH FAZLOLLAH ; HALTTUNEN SAKARI ; HESAMPOUR MEHRDAD ; MEHRDAD HESAMPOUR ; FAZLOLLAH AZARNOUSH ; SAKARI HALTTUNEN

Agent(s): AWA SWEDEN AB; PU SEJIN; TABOADA MOSER; AWAPATENT AB

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 JP KE KG 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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN108883955 A	20181123	LSPB	+	published / reissued	
CN108883955 A	20181123	LSPB	PB01	PUBLICATION	
EP3380439 A1	20181003	LSPB	+	published / reissued	
EP3380439 A1	20181003	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20180620
EP3380439 A1	20190522	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20190424
JP2018535093 T2	20190925	LSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	TEXT : JAPANESE INTERMEDIATE CODE: A621 EFFECTIVE DATE : 20190925
US10570036 BB	20200225	LSGT	+	granted / extensions (spc, cpc, pte)	

US10570036 BB	20180525	LSFE	FEPP	FEE PAYMENT PROCEDURE	TEXT : ENTITY STATUS SET TO UNDISCOUNTED (ORIGINAL EVENT CODE: BIG.); ENTITY STATUS OF PATENT OWNER: LARGE ENTITY
US10570036 BB	20180917	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : KEMIRA OYJ, FINLAND OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:HESAMPOUR, MEHRDAD; AZARNOUSH, FAZLOLLAH; HALTTUNEN, SAKARI; SIGNING DATES FROM 20180614 TO 20180823; REEL/FRA:046885/0860
US10570036 BB	20361122	PEXP		Calculated Patent Term Expiry	
US2018354824 AA	20181213	LSPB	+	published / reissued	
US2018354824 AA	20190719	LSES	NFA1	Non Final Action Mailed	
US2018354824 AA	20191112	LSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US2018354824 AA	20200115	LSFE	+PPV1	Publications -- Issue Fee Payment Verified	
US2018354824 AA	20200205	LSGT	PAT1	Patented Case	
US2018354824 AA	20200205	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
WO17089330 A1	20170601	LSPB	+	published / reissued	
WO17089330 A1	20180525	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2018527176 COUNTRY OF REF DOCUMENT : JP KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO17089330 A1	20180525	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2018527176 COUNTRY OF REF DOCUMENT : JP
WO17089330 A1	20180529	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO17089330 A1	20180627	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2016798523 COUNTRY OF REF DOCUMENT : EP
WO17089330 A1	20180629	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2016798523 COUNTRY OF REF DOCUMENT : EP EFFECTIVE DATE : 20180627
WO17089330 A1	20181113	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 112018010612 COUNTRY OF REF DOCUMENT : BR KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) : EFFECTIVE DATE : 20180524

Title: APPARATUS FOR TREATING WATER

Abstract: In a process for treating water or purifying wastewater, especially for its final **purification**, in which water is passed through filters from bottom to top and the filters are washed in the opposite direction from top to bottom, the muddy wash water produced from the filters is conducted into a washwater disposal vessel, the sludge is separated there from the washwater preferably by sedimentation and the washwater is then fed by compressed air to all filter vessels on the raw water side in proportion to the throughput and the thickened sludge is taken off discontinuously from the washwater disposal vessel. It is thus possible, with a minimum of expense, to carry out differing process steps of a mechanical/flocculating type and/or adsorptive type, biological-aerobic type or biological-**anaerobic** type.

Classifications:

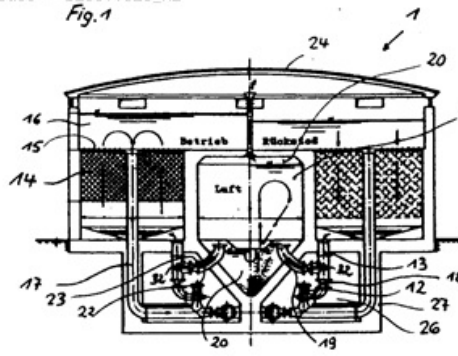
International (IPC 8-9): B01D24/16 B01D35/12 C02F1/28 C02F3/06 C02F3/28 (Advanced/Invention); B01D24/38 B01D24/46 B01D24/48 (Advanced/Non-invention); B01D24/02 B01D35/00 C02F1/28 C02F3/06 C02F3/28 (Core/Invention); B01D24/00 (Core/Non-invention)

International (IPC 1-7): C02F1/00 C02F1/28 C02F1/52 C02F3/02 C02F3/28 C02F9/00

CPC: Y02E50/343 C02F3/2806 B01D24/16 B01D24/386 B01D24/4631 B01D24/48 B01D35/12 C02F1/28 C02F3/06 Y02W10/15

European: B01D24/16 B01D35/12 C02F1/28 C02F3/06 C02F3/28C L01D24/16 L01D24/38R L01D24/46D L01D24/48

PatBase - DE3800613_R1

**Family:**

Publication number	Publication date	Application number	Application date
DE3800613 A1	19890720	DE19883800613	19880112
DE3800613 C2	19970703	DE19883800613	19880112

Priority:

DE19883800613 19880112 DE19883800613 19880112

Probable Assignee: IWTS CONSULTING ENGINEERS GMBH

Assignee(s): (std): IWTS CONSULTING ENGINEERS GMBH ; KLEIN HANS ULRICH DIPL ING ; KRATZENSTEIN KLAUS DIPL ING

Assignee(s): KRATZENSTEIN KLAUS DIPL ING 42389 WUPPERTAL DE ; KLEIN HANS ULRICH DIPL ING 97688 BAD KISSINGEN DE ; IWTS CONSULTING ENGINEERS GMBH 6200 WIESBADEN DE

Inventor(s): (std): KLEIN HANS ULRICH DIPL ING ; BERGEN PETER DIPL ING DR

Inventor(s): BERGEN PETER DIPL ING DR JUR ; BERGEN PETER DIPL ING DR JUR

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
DE3800613 A1	19890720	LSPB	+	published / reissued	
DE3800613 A1	19930325	LSSES	+8110	REQUEST FOR EXAMINATION PARAGRAPH 44	
DE3800613 A1	19970206	LSAS	8127	NEW PERSON/NAME/ADDRESS OF THE APPLICANT	PARTYTYPE : OWNER OWNER : KLEIN, HANS-ULRICH, DIPL.-ING., 97688 BAD KISSINGEN
DE3800613 C2	19970703	LSGT	+	granted / extensions (spc, cpc, pte)	
DE3800613 C2	19970703	LSGT	+D2	GRANT AFTER EXAMINATION	
DE3800613 C2	19970814	LSAS	8327	CHANGE IN THE PERSON/NAME/ADDRESS OF THE PATENT OWNER	PARTYTYPE : OWNER OWNER : AQUATEC WASSERAUFBEREITUNG PRODUKTIONS- UND SERVICE
DE3800613 C2	19980108	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DE3800613 C2	19990218	LSLE	-8339	CEASED/NON-PAYMENT OF THE ANNUAL FEE	
DE3800613 C2	19991118	LSRE	+8370	INDICATION OF LAPSE OF PATENT IS TO BE DELETED	
DE3800613 C2	20021219	LSLE	-8339	CEASED/NON-PAYMENT OF THE ANNUAL FEE	

Title: APPARATUS AND METHOD OF WASTE WATER TREATMENT WITH MEMBRANES

Abstract: PURPOSE: A separation film wastewater treatment apparatus and a method thereof are provided to improve the **purification** treatment capacity of wastewater, and to improve the water quality of effluent. CONSTITUTION: A separation film wastewater treatment apparatus comprises the following: a solid-liquid separator(20) for filtering impurities from wastewater; a separation film disk filter installed inside a filter for separating organic compounds and solid materials from the wastewater, and for removing bacteria; a rotational plate type separating film module(50) including a rotator for rotating the separation film disk filter; a biological reactor(70) selectively or compositively including an **anaerobic** processing bath(71) or an processing bath(72); and a processing tank(80) for storing the processed water.

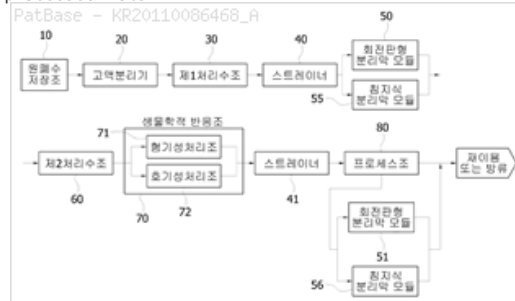
Classifications:

International (IPC 8-9): B01D33/15 C02F1/44

C02F3/06 (Advanced/Invention)

CPC: Y02W10/15 C02F3/308 B01D61/08 B01D65/02 C02F3/1273

C02F3/302 C02F2201/007



Family:

Publication number	Publication date	Application number	Application date
KR101124508 B1	20120320	KR20100006221	20100122
KR20110086468 A	20110728	KR20100006221	20100122

Priority:

KR20100006221 20100122

Probable Assignee:

CHOI CHAN SUP

Assignee(s): (std):

CHOI CHAN SUP

Inventor(s): (std):

CHOI CHAN SUP

Legal status (INPADOC)

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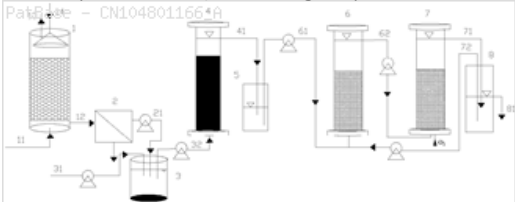
Patent	Date recorded	Event group	Code	Event	Details
KR101124508 B1	20120320	LSGT	+	granted / extensions (spc, cpc, pte)	
KR101124508 B1	20100122	LSSES	A201	REQUEST FOR EXAMINATION	
KR101124508 B1	20150122	LSFE	FPAY	ANNUAL FEE PAYMENT	PAYMENT DATE : 20150122 YEAR OF FEE PAYMENT : 4
KR101124508 B1	20160219	LSFE	FPAY	ANNUAL FEE PAYMENT	PAYMENT DATE : 20160219 YEAR OF FEE PAYMENT : 5
KR101124508 B1	20170209	LSFE	FPAY	ANNUAL FEE PAYMENT	PAYMENT DATE : 20170209 YEAR OF FEE PAYMENT : 6
KR101124508 B1	20171214	LSFE	FPAY	ANNUAL FEE PAYMENT	PAYMENT DATE : 20171214 YEAR OF FEE PAYMENT : 7
KR101124508 B1	20190119	LSFE	FPAY	ANNUAL FEE PAYMENT	PAYMENT DATE : 20190119 YEAR OF FEE PAYMENT : 8
KR101124508 B1	20200226	LSFE	FPAY	ANNUAL FEE PAYMENT	PAYMENT DATE : 20200226 YEAR OF FEE PAYMENT : 9
KR101124508 B1	20300122	PEXP		Calculated Patent Term Expiry	
KR20110086468 A	20110728	LSPB	+	published / reissued	
KR20110086468 A	20111129	LSGT	+E701	DECISION TO GRANT OR REGISTRATION OF PATENT RIGHT	
KR20110086468 A	20120229	LSGT	+GRNT	WRITTEN DECISION TO GRANT	

Title: METHOD AND DEVICE FOR COOPERATIVE FLUE GAS DESULFURIZATION AND SEWAGE ORGANIC MATTER DEGRADATION AND DENITRIFICATION

Abstract: The invention discloses a method and a device for cooperative flue gas desulfurization and sewage organic matter degradation and denitrification. Flue gas is subjected to desulfurization and **purification** through a spraying tower, and desulfurized waste liquid and sewage flow into a sulfite reduction reactor to be subjected to **anaerobic** biological treatment, so that organic matters in the sewage are degraded, and meanwhile sulfite is reduced; then the sewage and a reflux liquid in a nitration reactor are mixed, and flow into a denitrification reactor, nitrate in the sewage is reduced into nitrogen gas to realize nitrogen element removal, and sulfide in the sewage is oxidized into sulfate or elemental sulfur in an oxygen deficiency manner to realize part desulfuration; then the sewage flows into the nitration reactor again, organic matters in the sewage is further degraded, meanwhile ammonia nitrogen is oxidized into nitrate, and is removed after flowing back into the denitrification reactor; the rest sulfide is completely oxidized into sulfate, and the sewage is purified, and can be directly discharged. The average removal rate of the organic matters in the sewage is 95 percent, the ammonia nitrogen removal rate is 90 percent, the total nitrogen removal rate is above 70 percent, and the sulfide removal rate is 99.9 percent. The flue gas-sewage cooperative treatment process capable of realizing efficient flue gas desulfurization, sewage decarbonization and denitrogenation at the same time is established, flue gas desulfurized waste liquid is treated, and sewage is purified.

Classifications:

International (IPC 8-9): B01D47/06 B01D53/50 B01D53/78
C02F103/18 C02F3/30 C02F3/34 (Advanced/Invention);
C02F103/18 (Advanced/Non-invention)
CPC: Y02P70/34



Family:

Publication number	Publication date	Application number	Application date
 CN104801166 A	20150729	CN201510194353	20150422

Priority:

CN201510194353 20150422

Probable Assignee: UNIV SOUTH CHINA NORMAL

Assignee(s): (std): SOUTH CHINA NORMAL UNIV ; UNIV SOUTH CHINA NORMAL

Inventor(s): (std): ZHANG LIANG ; JIANG FENG ; ZHANG ZEFENG

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN104801166 A	20150729	LSPB	+	published / reissued	
CN104801166 A	20150729	LSPB	+C06	PUBLICATION	
CN104801166 A	20180320	LSRV	-RJ01	REJECTION OF INVENTION PATENT APPLICATION AFTER PUBLICATION	

Title: Treating contaminated ground - by modifying air and water brought to surface by vertical shafts

Abstract: Area (3) of contaminated ground, e.g. forming pt. of an old waste-tip, and normally superimposed on a water-laden lower area (4), has shafts (1,2) sunk vertically. Air is extracted via the apertured shaft walls and pumped to the surface. Here one of the parameters, esp. O₂ content and moisture, which affect aerobic or **anaerobic** biological breakdown of contaminants, are measured. After pref. modification, e.g. by admixture with fresh air or O₂, the extracted air is returned to the lower levels. The air monitoring circuit may be augmented by a similarly operated circuit for the lower water-bearing station. To reduce opt. localised pollution, the treated area may be covered by permeable sheeting. Circulated water may undergo pH adjustment and be supplied with nutrients. ADVANTAGE - Purifier is effected in situ without transporting or moving affected ground.

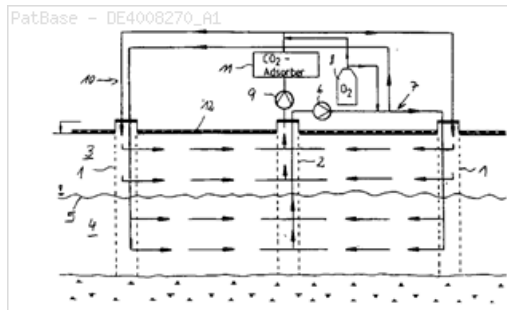
Classifications:

International (IPC 8-9): B09C1/10 (Advanced/Invention); B09C1/10 (Core/Invention)

International (IPC 1-7): A62D3/00 B03B7/00 C02F3/02

CPC: B09C1/10

European: B09C1/10



Family:

Publication number	Publication date	Application number	Application date
DE4008270 A1	19910919	DE19904008270	19900315
DE4008270 C2	19920227	DE19904008270	19900315

Priority:

DE19904008270 19900315

Probable Assignee: HIRL ANTON

Assignee(s): (std): EPHAN HANS JOACHIM DIPL BIOL ; HANERT HANS HELMUT ; HARBORTH PETER ; HIRL ANTON ; LEHMANN MATTHIAS

Assignee(s): HIRL ANTON DIPL ING ; HARBORTH PETER DIPL BIOL DR ; LEHMANN MATTHIAS DIPL BIOL ; HANERT HANS HELMUT PROF DR ; EPHAN HANS JOACHIM DIPL BIOL 3300 BRAUNSCHWEIG DE

Inventor(s): (std): HANERT HANS HELMUT PROF DR ; HARBORTH PETER DIPL BIOL DR ; HIRL ANTON DIPL ING ; LEHMANN MATTHIAS DIPL BIOL ; EPHAN HANS JOACHIM DIPL BIOL

Inventor(s): EPHAN HANS JOACHIM DIPL BIOL 3300 BRAUNSCHWEIG DE

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
DE4008270 A1	19910919	LSPB	+	published / reissued	
DE4008270 A1	19910919	LSSES	+OP8	REQUEST FOR EXAMINATION AS TO PARAGRAPH 44 PATENT LAW	
DE4008270 C2	19920227	LSGT	+	granted / extensions (spc, cpc, pte)	
DE4008270 C2	19920227	LSGT	+D2	GRANT AFTER EXAMINATION	
DE4008270 C2	19920820	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DE4008270 C2	20060105	LSLE	-8339	CEASED/NON-PAYMENT OF THE ANNUAL FEE	

Title: STEPPED SEWAGE INFILTRATION **PURIFICATION** SYSTEM

Abstract: The utility model discloses a stepped sewage infiltration **purification** system, including sewage fermentation vat, first order sewage filtration **purification** unit and the secondary sewage filtration **purification** unit who link up each other, first order sewage filtration **purification** unit and secondary sewage filtration **purification** unit are staggered arrangement and link up each other, and first order sewage filtration **purification** unit includes that secondary sewage filtration **purification** unit includes by the lower supreme plain soil layer who lays in proper order, packing layer, non -woven fabrics layer and topsoil by the lower supreme concrete layer who lays in proper order, infiltration layer and sandy loam layer. The utility model discloses having combined sewage **anaerobic** fermentation technique and multilayer filtration technique, having combined together sewage treatment with the afforestation, through cascaded two -stage sewage filtration **purification** unit's filtration **purification**, sewage purifying effect is effectively improved, and is significant to water source protection, sewage pipes sets up under the earth's surface simultaneously, can not give off the foul smell, simple process, and building cost is cheap, and it is easy to manage and protect, and the energy consumption is low.

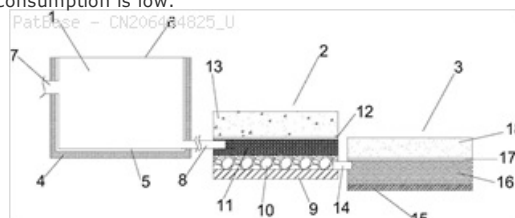
Classifications:

International (IPC 8-9): C02F101/16 C02F101/30 C02F3/04

C02F9/14 (Advanced/Invention);

C02F101/16 C02F101/30 (Advanced/Non-invention)

CPC: Y02W10/15



Family:

Publication number	Publication date	Application number	Application date
CN206494825 U	20170915	CN201720167795U	20170223

Priority:

CN201720167795U 20170223

Probable Assignee:

UNIV HECHI

Assignee(s): (std):

HECHI UNIV ; UNIV HECHI

Inventor(s): (std):

ZHANG YINJUN

Legal status (INPADOC)

[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
CN206494825 U	20170915	LSGT	+	granted / extensions (spc, cpc, pte)	
CN206494825 U	20170915	LSGT	+GR01	PATENT GRANT	
CN206494825 U	20190212	LSLE	-CF01	TERMINATION OF PATENT RIGHT DUE TO NON-PAYMENT OF ANNUAL FEE	
CN206494825 U	20190212	LSLE	-CF01	未缴年费专利权终止 (Termination of patent right due to unpaid annual fee)	TEXT : 专利权的终止 (TERMINATION OF PATENT RIGHT) EFFECTIVE DATE : 20180223
CN206494825 U	20270223	PEXP		Calculated Patent Term Expiry	

Title: CLARIFIER FOR THE BIOLOGICAL **PURIFICATION** OF WASTE WATER.

Abstract: 1. A settling tank for biologically cleaning waste water or sewage having an inflow and outflow for the water, a settling and sludge chamber on the ground side and air feed pipes or nozzles which run transversely to the direction of flow of the water as well as parallel to each other, said pipes or nozzles being arranged above said chamber, said air feed pipes or nozzles reaching approximately from wall to wall, characterized in that separating walls (9; 10; 17) are provided in the chamber above the air feed pipes (7) or nozzles, said separating walls being arranged parallel to the pipes and parallel to each other reaching from tank wall to tank wall which separating walls extend from the region of the pipes right up to the region of the upper level or overflow plane (6) of the water and, run, at least sectionally with respect to the vertical line as seen from below upwards inclined with respect to the direction of inflow of the water, and in that the air feed pipes or nozzles are constructed in such a way as to produce such a flow of the waste water between the separating walls that a build-up of sludge at the separating walls and sinking of the sludge thus formed is achieved.

Classifications:

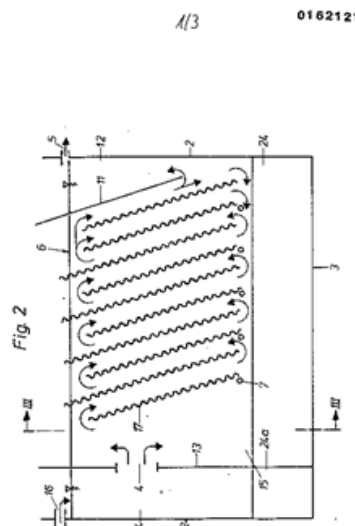
International (IPC 8-9): C02F3/06 C02F3/10 C02F3/12 C02F3/20 C02F3/22 C02F3/30 (Advanced/Invention);
C02F3/06 C02F3/10 C02F3/12 C02F3/20 C02F3/22 C02F3/30 (Core/Invention)

International (IPC 1-7): C02F3/06 C02F3/10 C02F3/12 C02F3/20 C02F3/30

CPC: Y02W10/15 C02F3/223 C02F3/06 C02F3/10 C02F3/12 C02F3/301

European: C02F3/06 C02F3/10 C02F3/12 C02F3/22C C02F3/30B

PatBase - EP0162121_R1



Family:

Publication number	Publication date	Application number	Application date
AT32599 E	19880315	AT19840105730T	19840519
DE3244944 A1	19840614	DE19823244944	19821204
DE3244944 C2	19870416	DE19823244944	19821204
EP0162121 A1	19851127	EP19840105730	19840519
EP0162121 B1	19880224	EP19840105730	19840519

Priority:

DE19823244944 19821204 EP19840105730 19840519

Probable Assignee: UNIVERSAL UMWELTTECHNIK

Assignee(s): (std): UNIVERSAL GES FUR UMWELTTECHNI ; UNIVERSAL UMWELTTECHNIK

Assignee(s): UNIVERSAL GESELLSCHAFT FUR UMWELTTECHNIK MBH ; UNIVERSAL GESELLSCHAFT FUR UMWELTTECHNIK MBH 2410 MOELLN DE ; UNIVERSAL GES FUR UMWELTTECHNIK MBH ; UNIVERSAL GESELLSCHAFT FUR UMWELTTECHNIK MBH ; UNIVERSAL GES F UMWELTTECHNIK MBH ; UNIVERSAL GES F UMWELTTECHNIK MBH 2410 MOELLN DE

Inventor(s): (std): MAUSS MATHIAS DIPL ING

Inventor(s): MAUSS MATHIAS DIPL ING 4154 TOENISVORST DE

Designated states: AT BE CH FR LI LU NL

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AT32599 E	19880315	LSGT	+	granted / extensions (spc, cpc, pte)	
AT32599 E	19900215	LSLE	-REN	CEASED DUE TO NON-PAYMENT OF THE ANNUAL FEE	
AT32599 E	20040519	PEXP		Calculated Patent Term Expiry	
DE3244944 A1	19840614	LSPB	+	published / reissued	
DE3244944 A1	19840614	LSES	+OP8	REQUEST FOR EXAMINATION AS TO PARAGRAPH 44 PATENT LAW	
DE3244944 C2	19870416	LSGT	+	granted / extensions (spc, cpc, pte)	

DE3244944 C2	19870416	LSGT	+D2	GRANT AFTER EXAMINATION	
DE3244944 C2	19871008	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
EP0162121 A1	19851127	LSPB	+	published / reissued	
EP0162121 A1	19860716	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 19860517
EP0162121 A1	19870729	LSSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 19870612
EP0162121 B1	19880224	LSGT	+	granted / extensions (spc, cpc, pte)	
EP0162121 B1	19880531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH LAPSED DATE : 19880531
EP0162121 B1	19880531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LI LAPSED DATE : 19880531
EP0162121 B1	19880531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LU NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 19880531
EP0162121 B1	19881201	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL LAPSED DATE : 19881201
EP0162121 B1	19890116	LSLE	-NLV4	NL: LAPSED OR ANULLED DUE TO NON-PAYMENT OF THE ANNUAL FEE	REF COUNTRY CODE : EP
EP0162121 B1	19890131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 19890131
EP0162121 B1	19890131	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : PL
EP0162121 B1	19890208	LSGT	+26N	NO OPPOSITION FILED	
EP0162121 B1	19890324	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : ST
EP0162121 B1	19890519	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT LAPSED DATE : 19890519
EP0162121 B1	19890531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE LAPSED DATE : 19890531

Title: PREPARATION METHOD OF MICROBIAL PREPARATION FOR REPAIRING AQUACULTURE WATER

Abstract: The invention discloses a preparation method of a microbial preparation for repairing aquaculture water and belongs to the field of water treatment. In the invention, kaolin, quartz sands, a pore forming agent, fly ash and clay are employed as raw materials and are sintered to prepare porous ceramic with well-developed specific surface area, which can adsorb and filter away a large amount of finesuspension substances. In addition, by culturing bottom mud of a pool in a culture solution, an **anaerobic** bacteria strain is separated in order to remove organic substances in the wastewater and improve biodegradability of the wastewater. The bacteria strain is free of oxygen so that a problem of anoxia in the water is avoided. By combining the porous ceramic and the **anaerobic** bacteria, the **anaerobic** bacteria can be adsorbed since the porous ceramic has adsorption capability, thereby improving **purification** effect on the aquaculture water. In addition, the microbial preparation is coated with a composite film formed from gelatin and chitosan, so that secondary pollution is avoided since leakage of the bacteria strain is prevented.

Classifications:

International (IPC 8-9): C02F3/28 C02F3/34 C12N1/00 (Advanced/Invention)

CPC: C02F3/34 C02F3/28 C02F2305/06 C12N1/00

Family:

Publication number	Publication date	Application number	Application date
 CN107879483 A	20180406	CN201711068746	20171103

Priority:

CN201711068746 20171103

Probable Assignee: CHANGZHOU XINJIA BIOLOGICAL TECH CO LTD

Assignee(s): (std): CHANGZHOU XINJIA BIOLOGICAL TECH CO LTD

Assignee(s): CHANGZHOU XINJIA BIOLOGICAL TECHNOLOGY CO ; CHANGZHOU CITY XIN KA BIOLOGICAL TECHNOLOGY CO LTD

Inventor(s): (std): LIU QIN ; LIU RONGFENG ; LIU XIN

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN107879483 A	20180406	LSPB	+	published / reissued	
CN107879483 A	20180406	LSPB	PB01	PUBLICATION	
CN107879483 A	20180518	LSAS	TA01	TRANSFER OF PATENT APPLICATION RIGHT	

Title: WASTEWATER TREATMENT PROCESS

Abstract: Provided is a wastewater treatment method that keeps *Bacillus* predominant inside the biological treatment tank and makes it possible to improve the water quality of the treated water while suppressing the volume of sludge generated in association with wastewater treatment. A wastewater treatment method for purifying wastewater by microorganisms in a biological treatment tank wherein the wastewater is purified by causing a first microorganism belonging to the genus *Bacillus* that is + for nitric acid reduction and - for starch decomposition and a second microorganism that is - for nitric acid reduction and + for starch decomposition in testing of the physiological properties of microorganisms to be predominant inside the biological treatment tank.

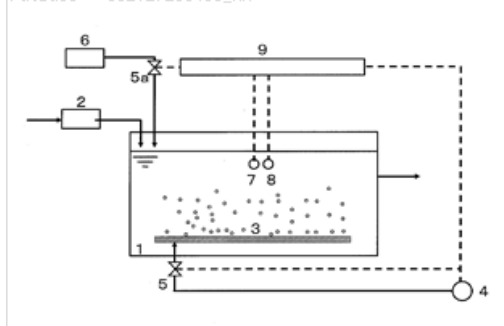
Classifications:

International (IPC 8-9): C02F3/00 C02F3/12 C02F3/30 C02F3/34 C12N1/00 C12N1/20 C12R1/07 C12R1/125 (Advanced/Invention); C02F101/16 C12R1/07 C12R1/125 (Advanced/Non-invention)

CPC: C12R1/125 C02F3/34 C02F3/302 C02F2101/163 C12N1/20 C12R1/07 C02F2305/06

US: 1/1 210/605

PatBase - US2017166465_A FIG. 1

**Family:**

Publication number	Publication date	Application number	Application date
CN106068243 A	20161102	CN201580007005	20150203
EP3103773 A1	20161214	EP20150746742	20150203
EP3103773 A4	20170927	EP20150746742	20150203
JP2015119100 A1	20170323	JP20150543604T	20150203
JP5959755 B1	20160802	JP20150543604T	20150203
US2017166465 AA	20170615	US20150116054	20150203
US9994469 BB	20180612	US20150116054	20150203
WO15119100 A1	20150813	WO2015JP52947	20150203

Priority:

JP20140019101 20140204 WO2015JP52947 20150203

Probable Assignee: FUJI ELECTRIC HOLDINGS CO LTD

Assignee(s): (std): FUJI ELECTRIC CO LTD ; FUJI ELECTRIC HOLDINGS CO LTD ; TAISEI KIGYO CO LTD

Assignee(s): TAISEI KIGYO CO ; N A ; FUJI ELECTRIC CO

Inventor(s): (std): MAE HIDEHARU ; TAGUCHI KAZUYUKI ; ABE TETSUYA ; HANAI YOSUKE ; YASUDA KEIGO

Agent(s): MOORE GRAEME PATRICK; HOLTZ HOLTZ AND VOLEK PC; MATSUI SHIGERU 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 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 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 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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN106068243 A	20161102	LSPB	+	published / reissued	
CN106068243 A	20161102	LSPB	+C06	PUBLICATION	
CN106068243 A	20161102	LSPB	PB01	公开 (The publication of application)	TEXT : 公开 (DISCLOSURE)
CN106068243 A	20190709	LSDW	-WD01	INVENTION PATENT APPLICATION DEEMED WITHDRAWN AFTER PUBLICATION	
EP3103773 A1	20161214	LSPB	+	published / reissued	
EP3103773 A1	20161214	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20160727
EP3103773 A4	20170927	LSES	+A4	SUPPLEMENTARY SEARCH REPORT DRAWN UP AND DESPATCHED	EFFECTIVE DATE : 20170825
EP3103773 A4	20180418	LSES	+17Q	FIRST EXAMINATION	EFFECTIVE DATE : 20180322

					REPORT DESPATCHED
EP3103773 A4	20190206	LSWD	-18W	APPLICATION WITHDRAWN	EFFECTIVE DATE : 20190103
JP2015119100 A1	20170323	LSPB	+	published / reissued	
JP2015119100 A1	20190618	LSFE	+R250	RECEIPT OF ANNUAL FEES	TEXT : JAPANESE INTERMEDIATE CODE: R250
JP5959755 B1	20160802	LSGT	+	granted / extensions (spc, cpc, pte)	
JP5959755 B1	20160526	LSGT	+A01	特許査定書 (Decision of patent grant)	
JP5959755 B1	20160628	LSFE	R100	特許料納付書 (Patent fee payment form)	
JP5959755 B1	20160701	LSGT	+R150	特許証 (Patent certificate)	
JP5959755 B1	20190613	LSFE	R20	特許料納付書 (Patent fee payment form)	
JP5959755 B1	20190618	LSFE	+R250	年金領収書, 年金領 収書 (分納) (Pension receipt, annuity receipt (scheduled))	
JP5959755 B1	20350203	PEXP		Calculated Patent Term Expiry	
US2017166465 AA	20170615	LSPB	+	published / reissued	
US2017166465 AA	20170920	LSES	NFA1	Non Final Action Mailed	
US2017166465 AA	20180306	LSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US2017166465 AA	20180414	LSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US2017166465 AA	20180523	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US9994469 BB	20180612	LSGT	+	granted / extensions (spc, cpc, pte)	
US9994469 BB	20160802	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : FUJI ELECTRIC CO., LTD., JAPAN OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:TAGUCHI, KAZUYUKI; YASUDA, KEIGO; HANAI, YOSUKE; AND OTHERS; SIGNING DATES FROM 20160726 TO 20160801; REEL/FRAME:039548/0201
US9994469 BB	20180523	LSGT	PAT1	Patented Case	
US9994469 BB	20181016	LSRE	CC	CERTIFICATE OF CORRECTION	
US9994469 BB	20350203	PEXP		Calculated Patent Term Expiry	
WO15119100 A1	20150813	LSPB	+	published / reissued	
WO15119100 A1	20150902	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2015543604 COUNTRY OF REF DOCUMENT : JP KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO15119100 A1	20160727	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2015746742 COUNTRY OF REF DOCUMENT : EP

WO15119100 A1	20160802	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 15116054 COUNTRY OF REF DOCUMENT : US
WO15119100 A1	20160804	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE

Title: SYSTEM INTENDED FOR **PURIFICATION** OF CONTAMINATED WATER BY PHYTOREMEDIATION

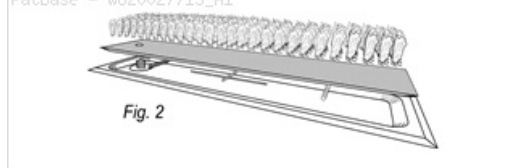
Abstract: The present invention describes a system intended for **purification** of contaminated water, said system comprising - a filter unit; - a filter substrate; - a plant growth environment with access to a water source intended to be purified via phytoremediation; wherein the filter unit is a horizontal filter unit, and wherein the system comprises a recirculation loop.

Classifications:

International (IPC 8-9): C02F3/32 (Advanced/Invention)

CPC: C02F3/327 C02F2101/305 C02F2101/36 C02F2103/06 C02F2103/10 C02F2301/046

PatBase - WO20027715_A1



Family:

Publication number	Publication date	Application number	Application date
WO20027715 A1	20200206	WO2019SE50716	20190731

Priority:

SE20180050949 20180802

Probable Assignee: LAQUA TREAT AB

Assignee(s): (std): LAQUA TREAT AB

Assignee(s): LAQUA TREATMENT AB

Inventor(s): (std): ROSENQUIST DAHN

Agent(s): AWA SWEDEN AB

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 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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
WO20027715 A1	20200206	LSPB	+	published / reissued	

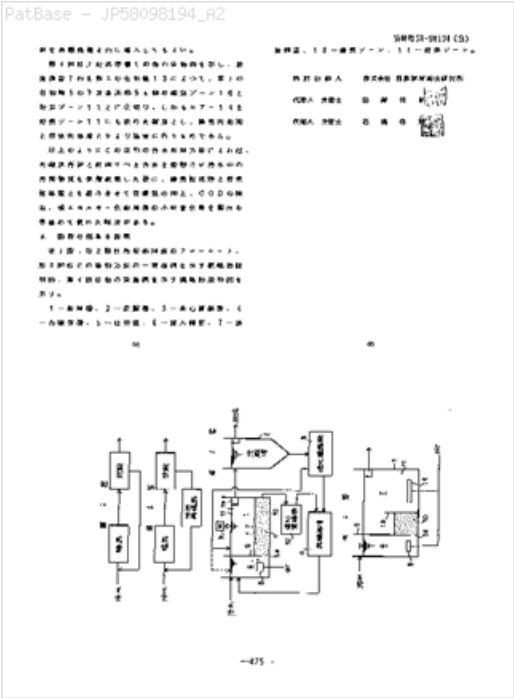
Title: **PURIFICATION** OF FILTHY WATER

Abstract: PURPOSE: To perform the betterment of precipitability, the removal of COD and the improvement of economizing energy, in the **purification** of filthy water, by bringing re aerated sludge into contact with filthy water to separate pollutants by adsorption, and then purifying the filthy water by the conjunction of **anaerobic** and aerobic treatments. CONSTITUTION: Filthy water together with re aerated sludge returned from a re aerating cell 4 is introduced into the inflow chamber 6 of a treating cell 1 and mixed therein to adsorb and coagulate pollutants in the filthy water. The mixed liquid flows through a passage 5a under a partition wall 5 into an **anaerobic** zone 10 at the lower part of an outflow chamber 7 where the mixed liquid is affected by **anaerobic** treatment at first, and then flows into an aerobic zone 11 where it is affected by aerobic treatment. Thereafter, the filthy water is fed into a precipitating cell 2 and subjected to precipitation therein. The supernatant liquid is drained, while precipitating sludge is fed to a centrifugal thickener 3 and concentrated. The separated liquid is returned to the aerobic zone 11 or the inflow chamber 6 of the treating cell 1 and affected by aerobic treatment again. The conc. sludge is fed to the re aerating cell 4, re aerated therein and returned to the inflow chamber 6 of the treating cell 1.

Classifications:

International (IPC 8-9): C02F3/30 C02F3/34 (Advanced/Invention)

International (IPC 1-7): C02F3/30 C02F3/34



Family:

Publication number	Publication date	Application number	Application date
JP1606019 C3	19910531	JP19810197177	19811207
JP2030758 B4	19900709	JP19810197177	19811207
JP58098194 A2	19830610	JP19810197177	19811207

Priority:

JP19810197177 19811207

Probable Assignee: NISHIHARA KANKYO EISEI KENKYUSHO KK

Assignee(s): (std): NISHIHARA ENV SAN RES CO LTD ; NISHIHARA KANKIYOU EISEI KENKY

Assignee(s): NISHIHARA KANKIYOU EISEI KENKYUSHO KK ; NISHIHARA KANKYO EISEI KENKYUSHO KK

Inventor(s): (std): HAYAKAWA NOBORU ; ISHIDA JIYUN

Inventor(s): ISHIDA JUN

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
JP1606019 C3	19910531	LSGT	+	granted / extensions (spc, cpc, pte)	
JP1606019 C3	20011207	PEXP		Calculated Patent Term Expiry	
JP2030758 B4	19900709	LSPB	+	published / reissued	

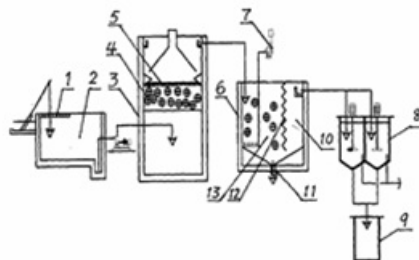
Title: Comprehensive treatment method for wastewater of livestock and poultry cultivation

Abstract: Disclosed is a comprehensive treatment method of livestock and poultry breeding wastewater, which adopts the following three steps that: firstly, an upflow **anaerobic** sludge blanket treater (3) is used for **anaerobic** biological treatment and killing bacteria and viruses. Secondly, an improved moving bed biomembrane treater (6) is used for aerobic biological treatment, a longitudinal clapboard (12) is added into the treater (6) to partition the treater into an aerobic zone (13) and a solid-liquid separation zone (10), an air pump (7) is used for increasing oxygen while guiding the sewage, and a simultaneous nitrification and denitrification method is used to remove total nitrogen (TN) and decompose organics under the action of microorganisms. Thirdly, a chemical reaction method is adopted to remove P and N in the sewage, after the former two steps of treatment, mass P and N with a certain amount still exist in the sewage, liquid magnesium oxide is again added for generating magnesium ammonium phosphate precipitates, and the supernatant is discharged when reaching the standards. The method has advantages of speediness, land saving, energy saving, complete material transfer, small influence under external conditions and good **purification** effects when treating wastewater.

Classifications:

International (IPC 8-9): C02F3/30 C02F9/14 (Advanced/Invention); C02F3/30 (Advanced/Non-invention)

PatBase - CN101343133_A



Family:

Publication number	Publication date	Application number	Application date
CN101343133 A	20090114	CN200810120397	20080826
CN101343133 B	20100602	CN200810120397	20080826

Priority:

CN200810120397 20080826

Probable Assignee: UNIV ZHEJIANG FORESTRY

Assignee(s): (std): UNIV ZHEJIANG FORESTRY ; ZHEJIANG FORESTRY UNIV

Assignee(s): ZHEJIANG FORESTRY UNIVERSITY

Inventor(s): (std): XIAOQIN ZHOU ; SHENGDAO SHAN ; YUCHENG CAO ; MIAOXIAN ZHANG ; SHAN ZHOU

Inventor(s): SHAN SHENGDAO ; ZHANG MIAOXIAN ; CAO YUCHENG ; ZHOU XIAOQIN ; ZHOU SHAN

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN101343133 A	20090114	LSPB	+	published / reissued	
CN101343133 A	20090114	LSPB	+C06	PUBLICATION	
CN101343133 B	20100602	LSGT	+	granted / extensions (spc, cpc, pte)	
CN101343133 B	20100602	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN101343133 B	20130612	LSAS	ASS	SUCCESSION OR ASSIGNMENT OF PATENT RIGHT	PARTYTYPE : OWNER OWNER : HANGZHOU HUHUI ENVIRONMENTAL PROTECTION TECHNOLOGY OLDPARTY : FORMER OWNER : ZHEJIANG A + F UNIVERSITY EFFECTIVE DATE : 20130514
CN101343133 B	20130612	LSAS	C41	TRANSFER OF PATENT APPLICATION OR PATENT RIGHT OR UTILITY MODEL	
CN101343133 B	20130612	LSAS	C56	CHANGE IN THE NAME OR ADDRESS OF THE PATENTEE	
CN101343133 B	20130612	LSAS	C56	CHANGE IN THE NAME OR ADDRESS OF THE PATENTEE	PARTYTYPE : OWNER OWNER : ZHEJIANG A + F UNIVERSITY OLDPARTY : FORMER NAME:

CN101343133 B	20130612	LSRE	COR	CHANGE OF BIBLIOGRAPHIC DATA	TEXT : CORRECT: ADDRESS; FROM: 311300 HANGZHOU, ZHEJIANG PROVINCE TO: 310020 HANGZHOU, ZHEJIANG PROVINCE
CN101343133 B	20280826	PEXP		Calculated Patent Term Expiry	

Title: SECONDARY UNDERGROUND SEWAGE-PERCOLATING PURIFICATINO TECHNOLOGY

Abstract: The sewage **purification** treatment technology is characterized by including the following steps: making domestic sewage pass through separation tank to implement pretreatment, and feeding the pretreated domestic sewage into first one second septic tanks, making the sewage fed into first septic tank undergo the process of **anaerobic** treatment and feed into a section of aerobic ground channel formed from water-dispersing tube, soil and water-collecting tube, and feeding the sewage into first water-collecting tank to form primary treatment **purification**, then feeding the primary purified water into second septic tank, and mixing it with sewage original in the tank, and feeding them into second section of aerobic ground channel, and discharging from second water-collecting tank so as to obtain the neutral water which can be reused. It possesses good denitrifying, dephosphorization and decarbonization effect, has no environmental pollution and its cost is low.

Classifications:

International (IPC 8-9): C02F3/06 C02F3/30 C02F9/02 C02F9/14 (Advanced/Invention);
C02F3/06 C02F3/30 C02F9/02 C02F9/14 (Core/Invention)

International (IPC 1-7): C02F3/06 C02F3/30 C02F9/02 C02F9/14

CPC: Y02W10/15

Family:

Publication number	Publication date	Application number	Application date
 CN1164510 C	20040901	CN20011001480	20010116
 CN1308028 A	20010815	CN20011001480	20010116

Priority:

CN20011001480 20010116

Probable Assignee: LANZHOU YINGGE ENVIRONMENT ENG

Assignee(s): (std): LANZHOU YINGGE ENVIRONMENT ENG ; LANZHOU YINGGE ENVIRONMENT ENGINEERING TECHNOLOGY

Assignee(s): LANZHOU YINGGE ENVIRONMENT ENGINEERING TECHNOLOGY CO ; LANZHOU YINGGE ENVIRONMENT ENGINEERING

Inventor(s): (std): YAO ZHENGHUI ; ZHENGHUI YAO

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN1164510 C	20040901	LSGT	+	granted / extensions (spc, cpc, pte)	
CN1164510 C	20040901	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN1164510 C	20100317	LSLE	-C19	LAPSE OF PATENT RIGHT DUE TO NON-PAYMENT OF THE ANNUAL FEE	
CN1164510 C	20210116	PEXP		Calculated Patent Term Expiry	
CN1308028 A	20010815	LSPB	+	published / reissued	
CN1308028 A	20010815	LSPB	+C06	PUBLICATION	

Title: WATER TREATMENT SUITED FOR OIL PRODUCTION WELLS

Abstract: A method of depleting the bacterial content in a water source is provided. The method involves depleting the bacterial content in a water source for a water flooding process, said method comprising contacting a water source with a superparamagnetic or paramagnetic nanoparticle; complexing the bacteria with the particle; and removing the bacteria-particle complex by applying a magnetic field so as to provide a water source with depleted bacterial content. The depleted water can then be pumped into one or more connecting injection well(s) in an oil field pushing the crude oil towards one or more production well(s) thereby allowing for enhanced oil recovery from the production wells.

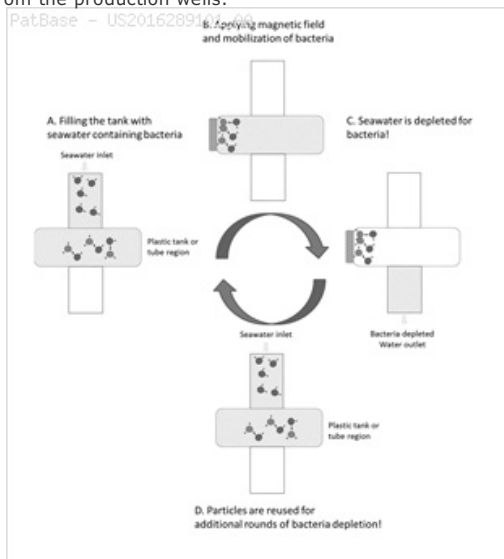
Classifications:

International (IPC 8-9): B03C1/01 B03C1/02 B03C1/033 B03C1/28 C02F1/48 C02F1/68 C02F103/02 C02F103/08

E21B43/20 (Advanced/Invention);
C02F103/02 C02F103/08 C02F3/34 (Advanced/Non-invention)

CPC: B03C1/02 E21B43/20 B03C2201/18 C02F1/488 B03C1/01 C02F1/683 C02F2103/02 C02F2103/08 C02F2303/08 C02F2303/20 C02F2305/08 C02F1/48 C02F1/68 B03C1/0332 B03C1/288 C02F3/345 C02F2303/16

US: 1/1 166/268



Family:

Publication number	Publication date	Application number	Application date
■ CN105764858 A	20160713	CN201480065444	20140930
■ DK179190 B1	20180122	DK20160070267	20160428
■ DK201670267 A1	20160517	DK20160070267	20160428
■ NO20160710 A	20160428	NO20160000710	20160428
■ US2016289101 AA	20161006	US20140033486	20140930
■ US9975790 BB	20180522	US20140033486	20140930
■ WO15044444 A1	20150402	WO2014EP70890	20140930

Priority:

DK20130070542 20130930 WO2014EP70890 20140930 DK20160070267 20160428

Probable Assignee: MAERSK OLIE OG GAS A S

Assignee(s): (std): MAERSK OLIE AND GAS ; MAERSK OLIE OG GAS AS

Assignee(s): TOTAL E AND P DANMARK A S ; MAERSK OLIE OG GAS A S

Inventor(s): (std): BENNETZEN MARTIN VAD ; MOGENSEN KRISTIAN

Agent(s): BRINKS GILSON AND LIONE; ZACCO DENMARK A S

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 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 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 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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN105764858 A	20160713	LSPB	+	published / reissued	
CN105764858 A	20160713	LSPB	+C06	PUBLICATION	
CN105764858 A	20181016	LSAS	CB02	CHANGE OF APPLICANT INFORMATION	
DK179190 B1	20180122	LSGT	+	granted / extensions (spc, cpc, pte)	
DK179190 B1	20360428	PEXP		Calculated Patent Term Expiry	
DK201670267 A1	20160517	LSPB	+	published / reissued	
NO20160710 A	20160428	LSPB	+	published / reissued	
US2016289101 AA	20161006	LSPB	+	published / reissued	

US2016289101 AA	20170515	LSES	NFA1	Non Final Action Mailed	
US2016289101 AA	20180118	LSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US2016289101 AA	20180414	LSFE	+AWA3	Awaiting TC Resp, Issue Fee Payment Verified	
US2016289101 AA	20180416	LSFE	+PPV1	Publications -- Issue Fee Payment Verified	
US2016289101 AA	20180502	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US9975790 BB	20180522	LSGT	+	granted / extensions (spc, cpc, pte)	
US9975790 BB	20160712	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : MAERSK OLIE OG GAS A/S, DENMARK OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:BENNETZEN, MARTIN VAD; MOGENSEN, KRISTIAN; REEL/FRAME:039132/0286 EFFECTIVE DATE : 20160526
US9975790 BB	20180502	LSGT	PAT1	Patented Case	
US9975790 BB	20200108	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : TOTAL E& P DANMARK A/S, DENMARK OLDPARTY : CHANGE OF NAME; ASSIGNOR:MAERSK OLIE OG GAS A/S; REEL/FRAME:051518/0377 EFFECTIVE DATE : 20180718
US9975790 BB	20340930	PEXP		Calculated Patent Term Expiry (a terminal disclaimer has been filed)	
WO15044444 A1	20150402	LSPB	+	published / reissued	
WO15044444 A1	20160330	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO15044444 A1	20160429	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 15033486 COUNTRY OF REF DOCUMENT : US
WO15044444 A1	20161026	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 14784415 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :

Title: REDUCTION OF ANAEROBICALLY OR AEROBICALLY DIGESTED SLUDGE COMPRISES FEEDING OZONE-ENRICHED AIR OR OZONE-ENRICHED OXYGEN SO MICROORGANISMS DAMAGED BY OZONE ARE DIGESTED BY THOSE WHICH ARE NOT, AND CONVERTED TO CARBON DIOXIDE

Abstract: Reduction of anaerobically or aerobically digested sludge comprises feeding it from the digester (1a, 1b) to a basin (3) where ozone-enriched air (7) or ozone-enriched oxygen (8) is fed in from below. Microorganisms which are damaged by ozone are digested by those which are not, and are converted to carbon dioxide.

Classifications:

International (IPC 8-9): C02F1/78 C02F3/12

C02F3/26 (Advanced/Invention);

C02F11/02 C02F11/06 (Advanced/Non-invention);

C02F1/78 C02F3/12 C02F3/26 (Core/Invention);

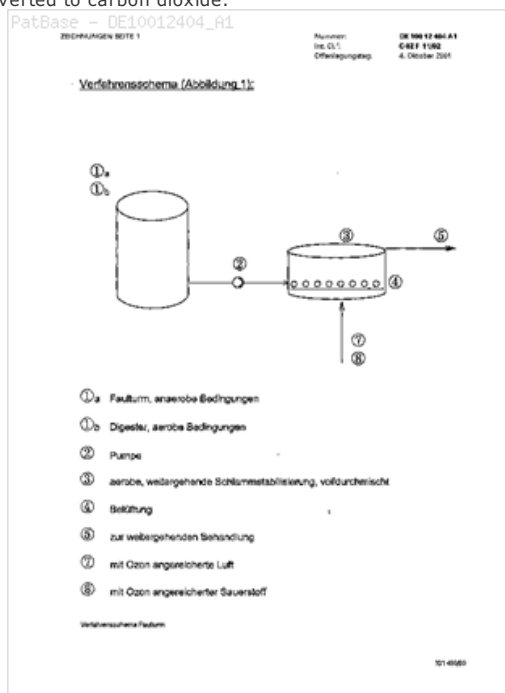
C02F11/02 C02F11/06 (Core/Non-invention)

International (IPC 1-7): A63B5/12 C02F11/02 C02F11/06

CPC: Y02W10/27 C02F1/78 C02F11/02 C02F11/06 C02F3/1221

C02F3/26 Y02W10/15

European: C02F1/78 C02F3/12A6 C02F3/26 M02F11/02 M02F11/06



Family:

Publication number	Publication date	Application number	Application date
DE10012404 A1	20011004	DE20001012404	20000315
DE19920010 A1	20001116	DE19991020010	19990503

Priority:

DE19991020010 19990503 DE20001012404 20000315

Probable Assignee: PHILAQUA AUFBEREITUNGSTECHNIK

Assignee(s): (std): PHILAQUA AUFBEREITUNGSTECHNIK

Assignee(s): PHILAQUA AUFBEREITUNGSTECHNIK GMBH

Inventor(s): (std): BIDINGER STEFAN ; BINDINGER STEFAN ; DZEDZIG BERND ; GEIGER MARKUS ; HECKMANN FRANK ; HOELTER HEINRICH ; HOER UWE ; LEITZKE ORTWIN ; LINNHOF MICHAEL ; RAUCH BERND

Legal status (INPADOC)

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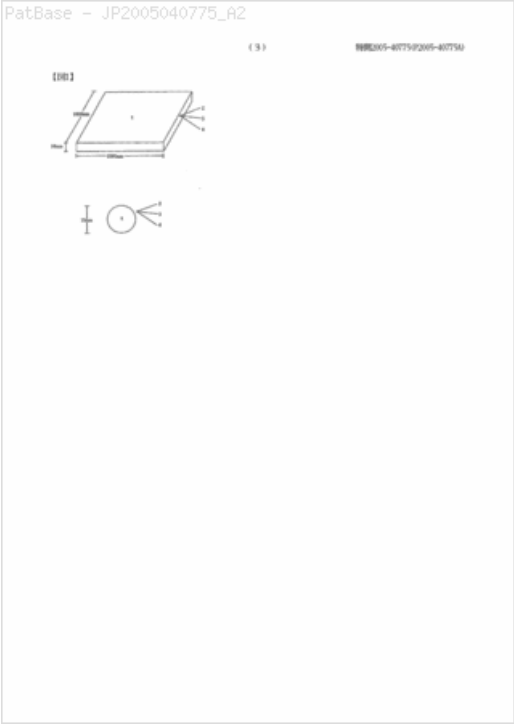
Patent	Date recorded	Event group	Code	Event	Details
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DE10012404 A1	20030213	LSLE	-8139	DISPOSAL/NON-PAYMENT OF THE ANNUAL FEE	
DE19920010 A1	20001116	LSPB	+	published / reissued	
DE19920010 A1	20001116	LSES	+OP8	REQUEST FOR EXAMINATION AS TO PARAGRAPH 44 PATENT LAW	
DE19920010 A1	20020814	LSLE	-8139	DISPOSAL/NON-PAYMENT OF THE ANNUAL FEE	

Title: MANUFACTURING METHOD OF CERAMIC MATERIALS FOR DECOMPOSING UNDERWATER CONTAMINANTS SUCH AS ORGANIC MATTER, TRIHALOMETHANE AND TRICHLOROETHYLENE

Abstract: PROBLEM TO BE SOLVED: To simplify the cleaning for recycle **purification** of water of a reservoir in a **purification** plant, **purification** tank, water tank or the like, and to remove trihalomethane and bromate ions which are byproducts generated when sterilization is performed at the **purification** plant with trichloroethylene. SOLUTION: In a manufacturing method of ceramic tiles and ceramic balls, even an **anaerobic** microorganism group(photosynthetic bacteria, lactic acid bacteria or the like) is enclosed in ceramics or the like and fired at a high temperature (1,000 degrees centigrade or higher) in an oxygen-free condition, the characteristics are never lost. The microorganisms are reduction fired with a mixture of titanium oxide (TiO₂), thereby decomposing hazardous substances adsorbed in the ceramics. Thus, the reduction action of a photocatalyst by titanium oxide and ultraviolet ray decomposes the hazardous substances in the water.

Classifications:

International (IPC 8-9): B01J35/02 C02F1/28 C02F1/32 C02F1/72 C02F3/34 C02F9/00 C04B33/13 C12N1/00 (Advanced/Invention); C12N1/00 (Advanced/Non-invention); B01J35/00 C02F1/28 C02F1/32 C02F1/72 C02F3/34 C02F9/00 C04B33/02 C12N1/00 (Core/Invention); C12N1/00 (Core/Non-invention)
International (IPC 1-7): B01J35/02 C02F1/28 C02F1/32 C02F1/72 C02F3/34 C02F9/00 C04B33/13 C12N1/00



Family:

Publication number	Publication date	Application number	Application date
JP2005040775 A2	20050217	JP20030291842	20030707

Priority:

JP20030291842 20030707

Probable Assignee: IRIGUCHI MICHIO
Assignee(s): (std) IRIGUCHI MICHIO
Inventor(s): (std) IRIGUCHI MICHIO

Legal status (INPADOC)

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Patent Date recorded Event group Code Event Details

Title: A WATER PURIFYING AND ACTIVATING DEVICE

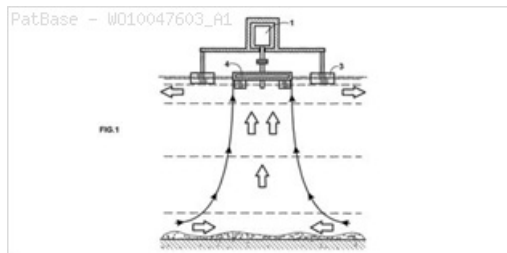
Abstract: A water purifying and activating apparatus comprising: a drive mechanism being supported above the surface of a stagnated water; and means to generate the surface flow of water radially from the center of rotation of said drive mechanism to induce the water flow from the bottom to the surface by generating surface flow with the use of minimal energy.

Classifications:

International (IPC 8-9): C02F3/22 (Advanced/Invention); C02F3/22 (Core/Invention)

CPC: Y02W10/15 C02F3/16 B01F3/04531 B01F7/163 B01F13/0035

European: B01F13/00K4 B01F3/04C5 B01F7/16F2 C02F3/16



Family:

Publication number	Publication date	Application number	Application date
WO10047603 A1	20100429	WO2008PH00010	20081024

Priority:

WO2008PH00010 20081024

Probable Assignee: COMMANDANTE BONIFACIO

Assignee(s): (std): COMMANDANTE BONIFACIO ; TANAKA HIDEO

Inventor(s): (std): COMMANDANTE BONIFACIO ; TANAKA HIDEO

Agent(s): BENGZON NEGRE UNTALAN

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 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 PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
WO10047603 A1	20100429	LSPB	+	published / reissued	
WO10047603 A1	20081208	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 12007504010 COUNTRY OF REF DOCUMENT : PH
WO10047603 A1	20110426	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO10047603 A1	20111116	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 08877584 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :

Title: IMPROVED FERMENTATION PROCESS AND PRODUCTS USEFUL FOR THE SAME

Abstract: The invention comprises a method/process of moving bed fermentation of a liquid carried out by microorganisms in a fermenter/reactor wherein the moving bed comprises a device containing within or on its surface a porous material capable of providing anchorage to bacteria capable of performing fermentation/degradation of organic load and the device is moveable throughout the column of the liquid in the fermenter/reactor when the device is added to the fermenting liquid and the fermenting liquid is agitated/aerated. This device is an artificial device. The method/process of this invention comprises fermentation of raw sewage or any other liquid containing fermentable organic dissolved solids, This invention comprises a device containing within or on its surface a porous material capable of providing anchorage to bacteria capable of performing fermentation/degradation and the device is moveable throughout the column of the liquid in the fermenter/reactor/aeration tank when the device is added to the fermenting liquid and the fermenting liquid is agitated/aerated by blower/aerator or any other means of improving aeration of the liquid. The porous material comprises activated carbon as granules or otherwise. In one embodiment, the device of this invention is impregnated with live bacteria required for the aerobic fermentation.

Classifications:

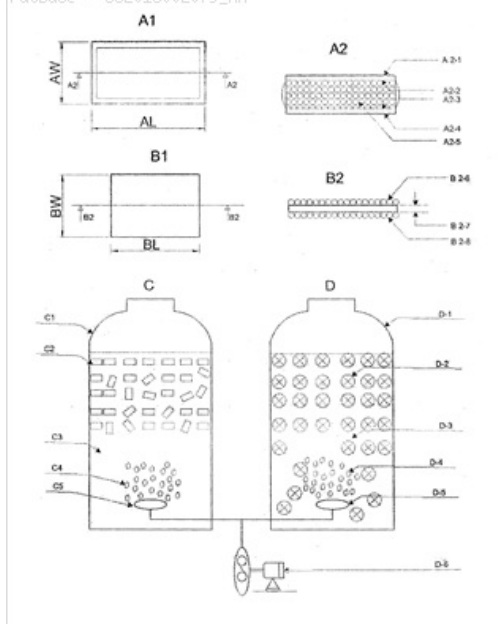
International (IPC 8-9): C02F1/52 C02F11/00 C02F3/02 C02F3/08 C02F3/10 C02F3/12 C02F3/30 C02F3/34 C02F9/00 C12M1/02 C12M1/04 C12N11/14 (Advanced/Invention)

CPC: C02F3/087 C02F3/104 C02F3/108 C02F3/106 Y02W10/15

C02F3/10 C02F3/02 C02F3/347 C02F2203/006 C02F3/085

US: 210/150 210/615

PatBase - US2016002079_AA

**Family:**

Publication number	Publication date	Application number	Application date
IN00475MU2013 A	20141121	IN2013MU00475	20130218
US2016002079 AA	20160107	US20140768447	20140218
WO14128721 A2	20140828	WO2014IN00099	20140218
WO14128721 A3	20141224	WO2014IN00099	20140218

Priority:

IN2013MU00475 20130218 WO2014IN00099 20140218

Probable Assignee: NIVARGI ATUL AMBAJI

Assignee(s): (std): NIVARGI ATUL AMBAJI

Assignee(s): ATUL AMBAJI NIVARGI

Inventor(s): (std): NIVARGI ATUL AMBAJI

Inventor(s): ATUL AMBAJI NIVARGI

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 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 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 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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
IN00475MU2013 A	20141121	LSPB	+	published / reissued	
US2016002079 AA	20160107	LSPB	+	published / reissued	
US2016002079 AA	20170920	LSES	NFA1	Non Final Action Mailed	
US2016002079 AA	20181009	LSES	NFA1	Non Final Action Mailed	
US2016002079 AA	20190529	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	
WO14128721 A2	20140828	LSPB	+	published / reissued	
WO14128721 A3	20150817	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 14768447 COUNTRY OF REF DOCUMENT : US

WO14128721 A3	20160316	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 14753598 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) :
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Title: A DEVICE FOR A PLANT PRODUCING BIOGAS FROM BIOLOGICAL MATERIAL

Abstract: A device for a plant producing biogas from biological material by **anaerobic** fermentation, in which a fermenting mass (14) is contained by a container (1), a first cover (4) is detachably connected in a fluid-sealing manner to the side wall (s) (12) of the container (1), forming a closed first space (43) above the fermenting mass (14), and at least one portion (42, 45, 52, 55) of a fluid-communicating conduit forms a connection between the first space (43) and the surroundings, the at least one fluid-communicating conduit portion (42, 45, 52, 55) being provided with a first valve (31/H1) arranged to limit the gas pressure above the fermenting mass (14) to a first gas pressure, the first valve (31/H1) being formed by the at least one conduit portion (42, 45, 52, 55) being submerged in a vessel (3) filled with liquid.

Classifications:

International (IPC 8-9): A01C3/02 C02F11/04 C02F3/28

C12M1/107 (Advanced/Invention);

C02F11/04 (Core/Invention)

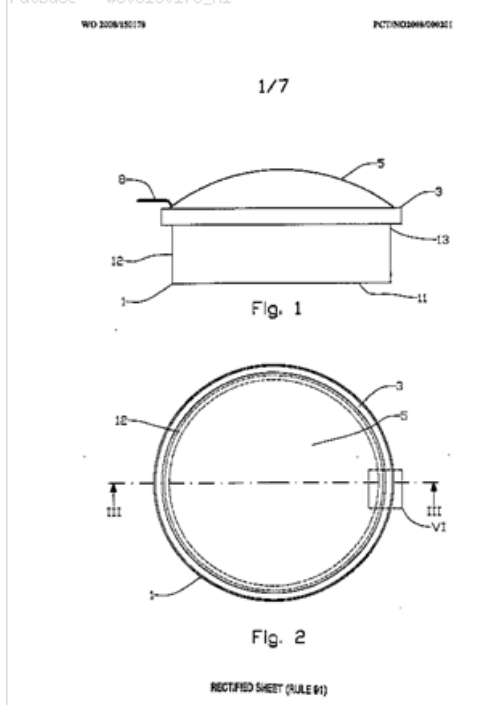
CPC: C12M41/40 C12M21/04 C12M23/36 C12M23/38 C12M23/56

Y02E50/343 Y02W10/12

European: C12M21/04 C12M23/36 C12M23/38 C12M23/56

C12M41/40 Y02E50/34B

PatBase - WO08150178_A1



Family:

Publication number	Publication date	Application number	Application date
DE112008001524 T5	20100422	DE200811001524T	20080605
NO20082325 A	20081209	NO20080002325	20080522
NO20082325 L	20081209	NO20080002325	20080522
NO327701 B1	20090914	NO20080002325	20080522
WO08150178 A1	20081211	WO2008NO00201	20080605

Priority:

NO20070002922 20070608 NO20080002325 20080522 WO2008NO00201 20080605

Probable Assignee: BIOWAZ AS

Assignee(s): (std): BIOWAZ AS ; ROERHEIM THOR OLAV

Assignee(s): RORHEIM THOR OLAV

Inventor(s): (std): ROERHEIM THOR OLAV ; RORHEIM THOR OLAV

Agent(s): HAMSOE PATENTBYRA ANS

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 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 PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
DE112008001524 T5	20100422	LSPB	+	published / reissued	
DE112008001524 T5	20111110	LSAS	R081	CHANGE OF APPLICANT/PATENTEE	PARTYTYPE : OWNER : HUGAAS BIOGASS AS, NO OLDPARTY : FORMER OWNER : BIOWAZ AS, SANDVIKA, NO EFFECTIVE DATE : 20110920
DE112008001524 T5	20140410	LSDW	-R119	APPLICATION DEEMED WITHDRAWN, OR IP RIGHT	EFFECTIVE DATE : 20140101

LAPSED, DUE TO NON-PAYMENT OF RENEWAL FEE				
NO20082325 A	20081209	LSPB	+	published / reissued
NO327701 B1	20090914	LSGT	+	granted / extensions (spc, cpc, pte)
NO327701 B1	20131223	LSLE	-MM1K	LAPSED BY NOT PAYING THE ANNUAL FEES
NO327701 B1	20280522	PEXP		Calculated Patent Term Expiry
WO08150178 A1	20081211	LSPB	+	published / reissued
WO08150178 A1	20091214	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE
				REF DOCUMENT NUMBER : 1120080015244 COUNTRY OF REF DOCUMENT : DE
WO08150178 A1	20100630	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE
				REF DOCUMENT NUMBER : 08766915 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :

Title: MICROBIOLOGICAL REACTIONS

Abstract: (Claim 1) 1. A process for carrying out enzymatic reactions using microorganisms embedded in or enclosed in a polymer matrix, wherein a reactor containing the microorganisms embedded in or enclosed in a polymer matrix is supplied with the product or products to be treated and a growth medium for the said microorganisms, and the products of the reaction are continuously drawn off, while maintaining the microorganism containing polymer matrix in the reactor.

Classifications:

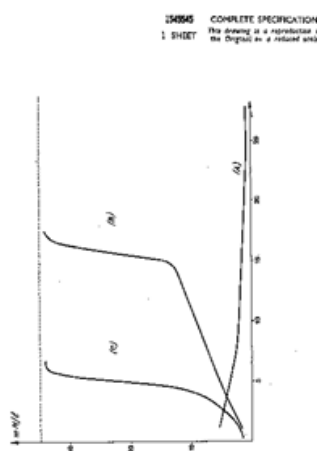
International (IPC 8-9): A23C9/12 A23C9/123 C02F3/28 C02F3/34 C12C11/00 C12G1/00 C12M1/40 C12N11/04 C12N11/08 C12P1/00 C12P13/02 C12P7/06 C12P7/56 (Advanced/Invention); C12R1/225 C12R1/385 C12R1/865 (Advanced/Non-invention); A23C9/12 C02F3/28 C02F3/34 C12C11/00 C12G1/00 C12M1/40 C12N11/00 C12P1/00 C12P13/00 C12P7/02 C12P7/40 (Core/Invention)

International (IPC 1-7): A23C9/12 C02C1/14 C02C5/10 C07C59/08 C12B1/00 C12C11/00 C12C11/08 C12C11/14 C12D1/00 C12D1/02 C12D13/02 C12D13/10 C12D3/00 C12D3/06 C12K1/00 G01N31/14

CPC: A23C9/1238 A23C2220/204 C02F3/34 C12P1/00 C12M21/12 C12M21/18 C12M25/14 C12R1/385 C02F3/2806 C02F3/342 C12C11/00 C12G1/00 C12N11/04 C12P7/56 Y02E50/17

European: A23C9/123H C02F3/28C C02F3/34 C02F3/34B C12C11/00 C12G1/00 C12M1/40 C12N11/04 C12P1/00 C12P7/56 C12R1/385 K23C220/204 Y02E50/17

PatBase - GB1545545_A

**Family:**

Publication number	Publication date	Application number	Application date
BE844766 A	19770131	BE19760169458	19760730
BR7605120 A	19770802	BR19760005120	19760805
DD126842 C	19770817	DD19760194222	19760805
DE2633076 A1	19770217	DE19762633076	19760722
ES450504 A1	19771001	ES19760450504	19760805
FR2320349 A1	19770304	FR19750024509	19750806
FR2320349 B1	19781117	FR19750024509	19750806
FR2359202 A2	19780217	FR19770020503	19770704
FR2359202 B2	19800229	FR19770020503	19770704
GB1545545 A	19790510	GB19760031612	19760729
IT1069533 A	19850325	IT19760068948	19760804
JP1573811 C3	19900820	JP19760093909	19760806
JP52021390 A2	19770217	JP19760093909	19760806
JP61037919 B4	19860826	JP19760093909	19760806
NL7608574 A	19770208	NL19760008574	19760802

Priority:

FR19750024509 19750806 DE19762633076 19760722

Probable Assignee: AGRONOMIQUE INST NAT RECH

Assignee(s): (std): ANSUCHICHU NAT DE LA RUSHERUSH ; INST NATIONALE DE LA RECH AGRO ; I N R A ; INST NAT DE LA RUSHIERUSHIE AG ; AGRONOMIQUE INST NAT RECH

Assignee(s): ANSUCHICHIYU NASHIONAARU DO RA RUSHIERUSHIE AGURONOMIKU ; ANSUCHICHU NASHIONAARU DO RA RUSHERUSHE AGURONOMIKU ; INST NAT DE LA RECH AGRONOMIQUE ; INSTITUT NATIONALE DE LA RECHERCHE AGRONOMIQUE ; INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE I N ; INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE I N R A ; INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE INRA TE PARIJS ; INSTITUT RECHERCHE AGRONOMIQUE ; NATIONAL DE LA RECHERCHE AGRONOMIQUE INR INST ; NATIONALE DE LA RECHERCHE AGRONOMIQUE INST ; RECHERCHE AGRONOMIQUE INST ; NATIONAL DE LA RECHERCHE AGRONOMIQUE INRA INST ; NATIONAL DE LA RECHERCHE AGRONOMIQUE INRA TE PARIJS INST

Inventor(s): (std): DIVIES CHARLES ; DIVIES CH ; DIVIES C ; SHIYARURU DEIBI

Inventor(s): CHARLES DIVIES ; SHARURU DEIBI ; CH DIVIES

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
BE844766 A	19770131	LSPB	+	published / reissued	
BE844766 A	19940131	LSLE	-RE	PATENT LAPSED	PARTYTYPE : OWNER OWNER : INSTITUT NATIONAL DE LA

BR7605120 A	19770802	LSPB	+	published / reissued	
DD126842 C	19770817	LSGT	+	granted / extensions (spc, cpc, pte)	
DD126842 C	19940805	PEXP		Calculated Patent Term Expiry	
DE2633076 A1	19770217	LSPB	+	published / reissued	
DE2633076 A1	19830908	LSES	+8110	REQUEST FOR EXAMINATION PARAGRAPH 44	
DE2633076 A1	19950316	LSRV	-8131	REJECTION	
ES450504 A1	19771001	LSGT	+	granted / extensions (spc, cpc, pte)	
FR2320349 A1	19770304	LSPB	+	published / reissued	
FR2320349 B1	19781117	LSGT	+	granted / extensions (spc, cpc, pte)	
FR2320349 B1	19860228	LSLI	CL	CONCESSION TO GRANT LICENCES	
FR2320349 B1	19950806	PEXP		Calculated Patent Term Expiry	
GB1545545 A	19790510	LSGT	+	granted / extensions (spc, cpc, pte)	
GB1545545 A	19790725	LSGT	+PS	PATENT SEALED	
GB1545545 A	19940330	LSLE	-PCNP	PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	EFFECTIVE DATE : 19930729
GB1545545 A	19960729	PEXP		Calculated Patent Term Expiry	
IT1069533 A	19850325	LSGT	+	granted / extensions (spc, cpc, pte)	
IT1069533 A	19960804	PEXP		Calculated Patent Term Expiry	
JP1573811 C3	19900820	LSGT	+	granted / extensions (spc, cpc, pte)	
JP1573811 C3	19960806	PEXP		Calculated Patent Term Expiry	
JP61037919 B4	19860826	LSPB	+	published / reissued	
NL7608574 A	19770208	LSPB	+	published / reissued	
NL7608574 A	19830901	LSES	+BA	A REQUEST FOR SEARCH OR AN INTERNATIONAL-TYPE SEARCH HAS BEEN FILED	
NL7608574 A	19830901	LSES	BB	A SEARCH REPORT HAS BEEN DRAWN UP	
NL7608574 A	19840201	LSES	+BC	A REQUEST FOR EXAMINATION HAS BEEN FILED	
NL7608574 A	19910902	LSWD	-BN	A DECISION NOT TO PUBLISH THE APPLICATION HAS BECOME IRREVOCABLE	

Title: IN SITU REMEDIATION OF CONTAMINATED GROUNDWATER

Abstract: In situ treatment of contaminated groundwater includes identifying a site contaminated with a pollutant susceptible to degradation by in situ, sulfate-reducing microorganisms. An amount of sulfate needed to support metabolism of the contaminants is estimated. The estimated amount of sulfate is applied to the site. In various alternatives of embodiments of the invention, the sulfate may be applied as a dry state or as a solution with water. The sulfate concentration in solution is in excess of 1000 ppm and may be as high as a near-saturation concentration.

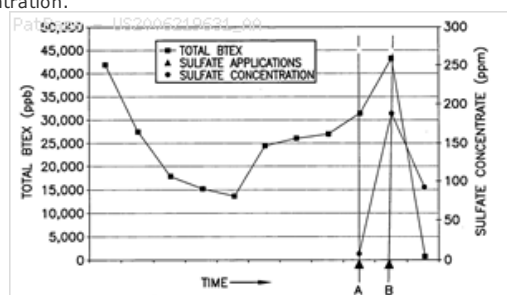
Classifications:

International (IPC 8-9): C02F3/00 (Advanced/Invention); C02F3/00 (Core/Invention)

CPC: B09C1/002

European: B09C1/00B

US: 210/170 210/170.07 210/610 210/611 210/747 210/747.8 210/747.800S



Family:

Publication number	Publication date	Application number	Application date
US2006219631 AA	20061005	US20050095137	20050330
US7138060 BB	20061121	US20050095137	20050330

Priority:

US20050095137 20050330

Probable Assignee: ANTEA USA INC

Assignee(s): (std): DELTA ENVIRONMENTAL CONSULTANT

Assignee(s): DELTA ENVIRONMENTAL CONSULTANTS INC ; ANTEA USA INC

Inventor(s): (std): CUTHBERTSON JAMES F ; CUTHBERTSON JAMES FLOYD

Inventor(s): CUTHBERTSON JAMES

Agent(s): MERCHANT AND GOULD PC

Legal status (INPADOC)

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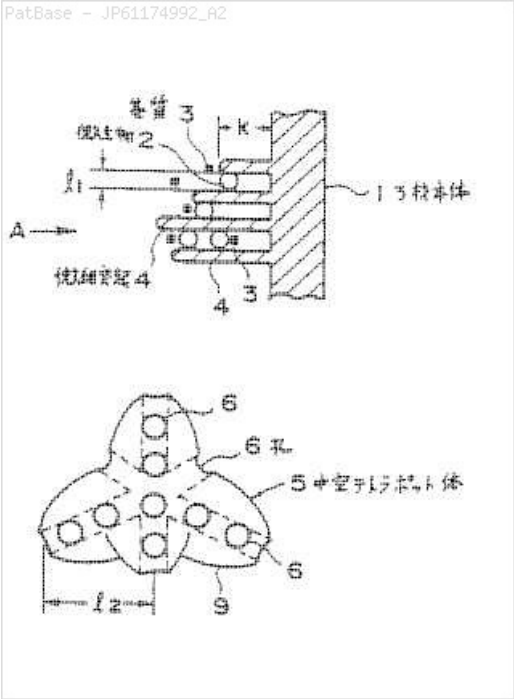
Patent	Date recorded	Event group	Code	Event	Details
US2006219631 AA	20061005	LSPB	+	published / reissued	
US7138060 BB	20061121	LSGT	+	granted / extensions (spc, cpc, pte)	
US7138060 BB	20050330	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : DELTA ENVIRONMENTAL CONSULTANTS, INC., MINNESOTA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:CUTHBERTSON, JAMES FLOYD; REEL/FRAME:016437/0443 EFFECTIVE DATE : 20050329
US7138060 BB	20100422	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US7138060 BB	20111024	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ANTEA USA, INC., MINNESOTA OLDPARTY : CHANGE OF NAME; ASSIGNOR:DELTA ENVIRONMENTAL CONSULTANTS, INC.; REEL/FRAME:027111/0531 EFFECTIVE DATE : 20110105
US7138060 BB	20141121	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US7138060 BB	20141222	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US7138060 BB	20141222	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	TEXT : PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362
US7138060 BB	20150113	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 20141121

US7138060 BB	20250330	PEXP	Calculated Patent Term Expiry
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Title: CONTACT FILTER MEDIUM FOR BIOLOGICAL TREATMENT

Abstract: PURPOSE:To obtain the title contact filter medium applicable to **anaerobic** biological treatment which is hardly put to practical use heretofore by providing fine protrusions on the surface of the contact filter medium which is applied to the biological membrane method at specified intervals in the biological treatment of org. sewage. CONSTITUTION:In the biological treatment of org. sewage, fine protrusions 4 are provided on the surface of a contact filter medium 1 at intervals of 3-20mu, and the filter medium is forced into a hollow four-footed body 5 having plural holes 6. When sewage is passed through the surface of the filter medium, both aerobes and anaerobes are collected by the protrusion 4 protruding from the surface of the filter medium and having 3-20mu height. Since the filter medium main body is a hollow four-footed body, the flow resistance is reduced, and more microbes are deposited on the surface per unit area. Consequently, the period of time from the starting to the normal operation can be shortened, stabilized **purification** can be maintained, the reaction rate is increased and the filter bed is hardly clogged.

Classifications:
International (ipc 8-9): C02F3/10 C02F3/28 (Advanced/Invention); C02F3/10 C02F3/28 (Core/Invention)
International (ipc 1-7): C02F3/10 C02F3/28
CPC: Y02W10/15



Family:

Publication number	Publication date	Application number	Application date
JP1911122 C3	19950309	JP19850014800	19850129
JP6036919 B4	19940518	JP19850014800	19850129
JP61174992 A2	19860806	JP19850014800	19850129

Priority:

JP19850014800 19850129

Probable Assignee: MEIDENSHA CORP

Assignee(s): (std): AGENCY IND SCIENCE TECHN ; MEIDENSHA CORP ; MEIDENSHA ELECTRIC MFG CO LTD

Assignee(s): AGENCY OF IND SCIENCE AND TECHNOL

Inventor(s): (std): MATSUYAMA HIDETOSHI ; MATSUNAGA AKIRA

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
JP1911122 C3	19950309	LSGT	+	granted / extensions (spc, cpc, pte)	
JP1911122 C3	20050129	PEXP		Calculated Patent Term Expiry	
JP6036919 B4	19940518	LSPB	+	published / reissued	
JP6036919 B4	20040427	LSFE	+R250	RECEIPT OF ANNUAL FEES	TEXT : JAPANESE INTERMEDIATE CODE: R250
JP6036919 B4	20050129	LSLE	-EXPY	CANCELLATION BECAUSE OF COMPLETION OF TERM	

Title: SEPARATION OF ORGANIC SOLIDS FROM WASTE LIQUIDS

Abstract: (Claim 1) In a method for separating organic solid waste materials from liquids, the steps of forming a first aqueous liquid body as part of a closed system, supporting a mass of elongate strips of generally fibrous material in said liquid body so that at least a portion thereof extends above the surface of said liquid body, said fibrous material forming a liquid-contact zone adjacent and co-extensive with said liquid body, said fibrous material containing and supporting a microbiological community capable of consuming organic solid materials, forming at least one additional aqueous liquid body as a separate part of said closed system, supporting an additional mass of elongate strips of generally fibrous material entirely within the confines of said additional liquid body to form a further liquid-gas contact zone within said additional liquid body, the fibrous material within said additional liquid body likewise containing and supporting a micro-biological community capable of consuming organic solid materials, introducing a waste liquid containing unwanted organic solids to said first liquid body, continuously introducing an oxygen containing gas to said closed system to thereby create a slightly positive gas pressure therein, whereby said oxygen containing gas is brought into contact with the micro-biological communities contained and supported within the masses of fibrous material in said aqueous bodies.

Classifications:

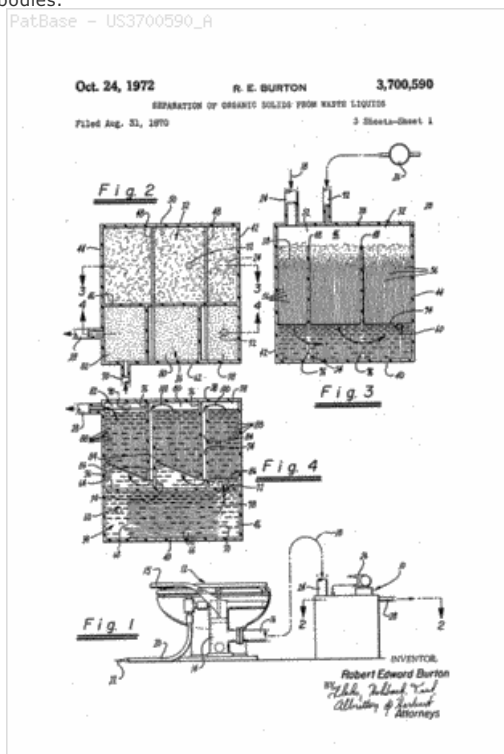
International (IPC 8-9): C02F3/06 (Advanced/Invention);
C02F3/06 (Core/Invention)

International (IPC 1-7): C02C1/04

CPC: Y02W10/15 C02F3/06

European: C02F3/06

US: 210/150 210/17 210/615

**Family:**

Publication number	Publication date	Application number	Application date
US3700590 A	19721024	US19700068428	19700831

Priority:

US19700068428 19700831

Probable Assignee: MICROPHOR INC A DELAWARE CORP

Assignee(s): (std): MICROPHOR INC

Assignee(s): MICROPHOR INC A CORP ; MICROPHOR INC A DELAWARE CORP

Inventor(s): (std): BURTON ROBERT EDWARD

Inventor(s): ROBERT EDWARD BURTON

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US3700590 A	19721024	LSGT	+	granted / extensions (spc, cpc, pte)	
US3700590 A	19831214	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : MICROPHOR, INC. A CORP., DELAWARE OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:MICROPHOR, INC. A CA CORP.; REEL/FRAME:004199/0917 EFFECTIVE DATE : 19800401
US3700590 A	19831214	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : MICROPHOR, INC. A DE CORP. OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST. DELAWARE, EFFECTIVE APRIL 1, 1980; ASSIGNOR:MICROPHOR, INC. A CA CORP.; REEL/FRAME:004199/0917 EFFECTIVE DATE : 19800401

US3700590 A	19881017	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED FILE - (OLD CASE ADDED FOR FILE TRACKING PURPOSES)
US3700590 A	19890320	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : MICROPHOR, INC., A DELAWARE CORP., CALIFORNIA OLDPARTY : RELEASED BY SECURED PARTY; ASSIGNOR:UNITED STATES TRUST COMPANY OF NEW YORK, A NY. CORP.; REEL/FRAME:005075/0545 EFFECTIVE DATE : 19890227

Title: METHOD AND APPARATUS FOR PRODUCING SYNTHESIS GAS FROM BIOMASS

Abstract: The invention relates to a method and apparatus for producing synthesis gas (7) from biomass (2). The method comprises a step for producing raw product gas (3), and a purifying step comprising several processing steps performed in gas processing means (10, 12, 13, 14) for converting the raw product gas (3) to synthesis gas (7). One processing step is a carbon dioxide removal step for separating carbon dioxide from the stream of raw product gas (3) in a gas processing means comprising a gas purifier (10). The method comprises a step for feeding a stream of the carbon dioxide (9) from the gas purifier (10) to at least one part of the apparatus, said at least one part of the apparatus being selected from: the biomass supply system (4), the gasifier (6) and at least one of the gas processing means (10, 12, 13, 14).

Classifications:

International (IPC 8-9): B01J19/00 B01J8/00 B01J8/18 B09B3/00 C01B13/02 C01B3/02 C01B3/22 C01B3/24 C01B3/32 C01B3/34 C01B3/36 C01B3/38 C01B3/48 C01B3/50 C01B3/52 C01B3/56 C01B3/58 C01B31/20 C01B32/50 C01F11/18 C02F1/00 C02F1/42 C02F1/72 C02F101/34 C02F103/02 C02F103/16 C02F103/28 C02F103/36 C02F11/02 C02F11/06 C02F11/10 C02F3/00 C02F9/00 C07C1/04 C07C1/20 C07C27/00 C07C7/04 C09C1/02 C10B3/02 C10B53/02 C10G1/00 C10G2/00 C10G2/20 C10G3/00 C10G45/00 C10G45/58 C10G65/14 C10G65/16 C10G7/00 C10J3/00 C10J3/20 C10J3/46 C10J3/48 C10J3/50 C10J3/52 C10J3/56 C10J3/72 C10J3/84 C10K1/00 C10K1/10 C10K1/14 C10K3/02 C10K3/04 C10L1/04 C10L1/16 D21C11/00 D21C11/06 D21H17/63 D21H17/67 D21H19/38 (Advanced/Invention); C01F11/18 C02F101/34 C02F103/02 C02F103/16 C02F103/28 C02F103/36 C10G2/00 C10J3/00 C10J3/84 D21C11/00 D21H17/63 (Advanced/Non-invention); C01B3/00 C01F11/00 C02F11/10 C02F9/00 C07C1/00 C09C1/02 C10B3/00 C10B53/00 C10G1/00 C10G2/00 C10G3/00 C10G45/00 C10G45/58 C10G65/00 C10G7/00 C10J3/00 C10J3/46 C10J3/48 C10L1/00 D21H17/00 (Core/Invention); C10J3/00 (Core/Non-invention); C01F C09C C10B C10G C10J (Subclass/Invention)

International (IPC 1-7): C01B3/32 C01B3/50 C01B3/56 C01F11/18 C10G2/00 C10G3/00 C10G45/58 C10J3/50
CPC: C10G3/46 C10G2300/1014 C10G2300/1018 C10G2300/304 C10G2300/307 C01B3/32 C01B3/501 C01B3/56 C01B2203/0405 C01B2203/047 C01B2203/062 C01B2203/1217 C10G1/00 C10G65/16 C10K3/00 Y02E50/13 B01D53/00 D21H17/675 C07C1/04 C10G7/00 C10G45/00 C10J3/46 C10G2300/1022 C10G2400/04 Y02E50/14 C01B2203/1241 C10J3/50 C10J3/52 C10J2200/15 C10J2300/0969 C10J2300/1693 Y02W10/40 C01B3/38 C01B2203/0475 C01B2203/1235 C10G2300/202 C10G2300/4081 C10G2300/44 C10G2300/807 C10J3/503 C10J3/721 C10J3/84 C10J2300/0903 C10J2300/0973 C10J2300/1618 C10J2300/1807 C10J2300/1838 C10J2300/1884 C10K1/002 C10K1/005 C10K1/006 C10K1/143 C10K3/023 Y02P20/125 B01D53/526 B01D53/8618 B01D2252/2026 B01D2252/204 B01D2253/1124 B01D2255/20792 B01D2257/304 B01D2257/504 Y02P20/152 C01F11/18 C01B3/382 C01B3/48 C01B3/52 C01B13/0248 C01B2203/0244 C01B2203/0283 C01B2203/0415 C01B2203/043 C01B2203/0465 C01B2203/048 C01B2203/049 C01B2210/0046 C02F1/00 C02F3/00 C02F2101/34 C02F2103/023 C02F2103/16 C02F2103/28 C02F2103/365 C10G2/32 C10G3/00 C10G45/58 C10G2300/1003 C10G2300/1011 C10J3/00 C10J2300/0916 C10J2300/0959 C10J2300/16 C10J2300/1659 C10J2300/1678 C10J2300/169 C10K1/101 C10K3/04 D21C11/0007 D21C11/06 Y02E20/16 Y02E20/18 Y02E50/32 Y02P20/145 Y02P30/20 C01B3/323 C01B2203/0233 C01B2203/1223 C10G2/30 C10G3/50 C10L1/04 C10L2200/0469 C10L2290/42 C10L2290/54

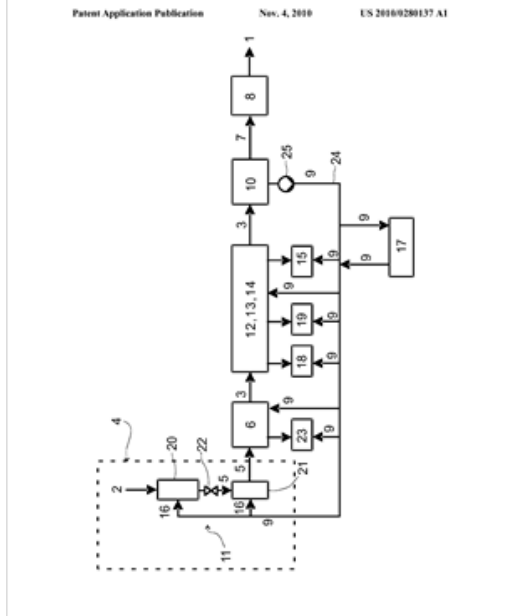
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US: 1/1 162/181.2 162/181.200P 210/195.1 210/259 210/260 210/600 210/600S 210/601 210/601S 210/634 210/660 210/660S 210/758 210/767 210/919 210/928 422/129 422/129S 422/140 422/140S 422/162 422/185 422/198 422/198S 422/608 422/608S 422/609 422/609S 422/610 422/610S 422/611 422/611S 422/612 422/612S 422/643 422/643S 423/437.1 423/437.100S 423/648.1 423/648.100S 518/700 518/700P 518/702 518/702P 518/712 518/712P 585/14 585/14P 585/240 585/240S 585/254 585/254P 585/310 585/800 585/800S

Family:

Publication number	Publication date	Application number	Application date
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Priority:

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WO2008EP64823	20081031	US20100742213	20100823	US20150963991	20151209

Probable Assignee: UPM KYMMENE OYJ

Assignee(s): (std): JOKELA PEKKA ; JUPM KIMMENE OJJ ; KARLSSON MARKKU ; KNUUTTILA PEKKA ; KUKKAMAEMI ESKO ; UPM KYMMENE OYJ ; KUKKONEN PETRI ; UPM KYMMENE CORP ; UPMKYMMENE CORP ; UPMKYMMENE OYJ

Inventor(s): (std): KNUUTTILA PEKKA ; KUKKONEN PETRI ; PETRI KUKKONEN ; PEKKA KNUUTTILA ; ESKO KUKKAMAEMI ; MARKKU KARLSSON ; PEKKA JOKELA ; KUKKAMAEMI ESKO ; JOKELA PEKKA ; KARLSSON MARKKU ; KUKKAMAEMI ESKO

Agent(s): SMART AND BIGGAR; GROSSE SCHUMACHER KNAUER VON HIRSCHHAUSEN; HJELT PIA DORRIT HELENE; HOFFMANN EITL; BOCO IP OY AB; FUSTER GUSTAVO NICOLAS; TAKASHIMA HAJIME; STEPTOE AND JOHNSON LLP; CANTOR COLBURN LLP; BORENIUS AND CO OY AB

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 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 PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
BRPI0814273 A2	20160920	LSFE	-B08F	APPLICATION FEES: DISMISSAL - ARTICLE 86 OF INDUSTRIAL PROPERTY LAW	TEXT : REFERENTE A 8A ANUIDADE.
BRPI0814273 A2	20170110	LSLE	-B08K	LAPSE AS NO EVIDENCE OF PAYMENT OF THE ANNUAL FEE HAS BEEN FURNISHED TO INPI (ACC. ART. 87)	TEXT : EM VIRTUDE DO ARQUIVAMENTO PUBLICADO NA RPI 2385 DE 20-09-2016 E CONSIDERANDO AUSENCIA DE MANIFESTACAO DENTRO DOS PRAZOS LEGAIS, INFORMO QUE CABE SER MANTIDO O ARQUIVAMENTO DO PEDIDO DE PATENTE, CONFORME O DISPOSTO NO ARTIGO 12, DA RESOLUCAO 113/2013.
BRPI0819109 A2	20191001	LSFE	-B08F	APPLICATION FEES: DISMISSAL - ARTICLE 86 OF INDUSTRIAL PROPERTY LAW	
BRPI0819109 A2	20200121	LSLE	-B08K	LAPSE AS NO EVIDENCE OF PAYMENT OF THE ANNUAL FEE HAS BEEN FURNISHED TO INPI (ACC. ART. 87)	TEXT : EM VIRTUDE DO ARQUIVAMENTO PUBLICADO NA RPI 2543 DE 01-10-2019 E CONSIDERANDO AUSENCIA DE MANIFESTACAO DENTRO DOS PRAZOS LEGAIS, INFORMO QUE CABE SER MANTIDO O ARQUIVAMENTO DO PEDIDO DE PATENTE, CONFORME O DISPOSTO NO ARTIGO 12, DA RESOLUCAO 113/2013.
BRPI0819176 A2	20160920	LSFE	-B08F	APPLICATION FEES: DISMISSAL - ARTICLE 86 OF INDUSTRIAL PROPERTY LAW	TEXT : REFERENTE A 8A ANUIDADE.
BRPI0819176 A2	20170110	LSLE	-B08K	LAPSE AS NO EVIDENCE OF PAYMENT OF THE ANNUAL FEE HAS BEEN FURNISHED TO INPI (ACC. ART. 87)	TEXT : EM VIRTUDE DO ARQUIVAMENTO PUBLICADO NA RPI 2385 DE 20-09-2016 E CONSIDERANDO AUSENCIA DE MANIFESTACAO DENTRO DOS PRAZOS LEGAIS, INFORMO QUE CABE SER MANTIDO O ARQUIVAMENTO DO PEDIDO DE PATENTE, CONFORME O DISPOSTO NO ARTIGO 12, DA RESOLUCAO 113/2013.
CA2693401 AA	20090129	LSPB	+	published / reissued	
CA2693401 AA	20130521	LSSES	+EEER	EXAMINATION REQUEST	EFFECTIVE DATE : 20130508
CA2693401 C	20160412	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2693401 C	20280718	PEXP		Calculated Patent Term Expiry	
CA2696860 AA	20090129	LSPB	+	published / reissued	
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CA2696860 AA	20150914	LSLE	-FZDE	DEAD	EFFECTIVE DATE : 20150720
CA2696867 AA	20090129	LSPB	+	published / reissued	
CA2696867 AA	20130715	LSSES	+EEER	EXAMINATION REQUEST	EFFECTIVE DATE : 20130621
CA2696867 AA	20160831	LSLE	-FZDE	DEAD	EFFECTIVE DATE : 20160720
CA2704999 AA	20090514	LSPB	+	published / reissued	
CA2704999 AA	20130703	LSSES	+EEER	EXAMINATION REQUEST	EFFECTIVE DATE : 20130619
CA2704999 C	20151229	LSGT	+	granted / extensions (spc, cpc, pte)	

CA2704999 C	20281029	PEXP		Calculated Patent Term Expiry	
CA2705064 AA	20090514	LSPB	+	published / reissued	
CA2705064 AA	20130416	LSES	+EEER	EXAMINATION REQUEST	EFFECTIVE DATE : 20130404
CA2705064 C	20160906	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2705064 C	20280718	PEXP		Calculated Patent Term Expiry	
CA2705066 AA	20090514	LSPB	+	published / reissued	
CA2705066 AA	20141228	LSLE	-FZDE	DEAD	EFFECTIVE DATE : 20141031
CN101802141 A	20100811	LSPB	+	published / reissued	
CN101802141 A	20100811	LSPB	+C06	PUBLICATION	
CN101802141 A	20150520	LSRV	-C12	REJECTION OF A PATENT APPLICATION AFTER ITS PUBLICATION	
CN101802142 A	20100811	LSPB	+	published / reissued	
CN101802142 A	20100811	LSPB	+C06	PUBLICATION	
CN101802142 A	20160413	LSRV	-C12	REJECTION OF A PATENT APPLICATION AFTER ITS PUBLICATION	
CN101848979 A	20100929	LSPB	+	published / reissued	
CN101848979 A	20100929	LSPB	+C06	PUBLICATION	
CN101848979 A	20160831	LSRV	-C12	REJECTION OF A PATENT APPLICATION AFTER ITS PUBLICATION	
CN101918305 A	20101215	LSPB	+	published / reissued	
CN101918305 A	20101215	LSPB	+C06	PUBLICATION	
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CN101939264 A	20110105	LSPB	+	published / reissued	
CN101939264 A	20110105	LSPB	+C06	PUBLICATION	
CN101939264 B	20121128	LSGT	+	granted / extensions (spc, cpc, pte)	
CN101939264 B	20121128	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN101939264 B	20280718	PEXP		Calculated Patent Term Expiry	
CN102027095 A	20110420	LSPB	+	published / reissued	
CN102027095 A	20110420	LSPB	+C06	PUBLICATION	
CN102027095 A	20140115	LSDW	-C02	DEEMED WITHDRAWAL OF PATENT APPLICATION AFTER PUBLICATION (PATENT LAW 2001)	
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(spc, cpc, pte)					
DK2190950 T3	20280718	PEXP		Calculated Patent Term Expiry	
EP2179009 A2	20100428	LSPB	+	published / reissued	
EP2179009 A2	20100428	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20100218
EP2179009 A2	20140108	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20131205
EP2179009 A2	20160720	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	EFFECTIVE DATE : 20160202
EP2185670 A2	20100519	LSPB	+	published / reissued	
EP2185670 A2	20100519	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20100218
EP2185670 A2	20141029	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20140926
EP2185670 A2	20180627	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	EFFECTIVE DATE : 20180601
EP2185670 A2	20180801	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	PARTYTYPE : OWNER OWNER : UPM-KYMMENE CORPORATION
EP2185670 B1	20181114	LSGT	+	granted / extensions (spc, cpc, pte)	
EP2185670 B1	20181114	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : FG4D
EP2185670 B1	20181115	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP
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EP2185670 B1	20181206	LSPB	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R096 REF DOCUMENT NUMBER : 602008057922 COUNTRY OF REF DOCUMENT : DE
EP2185670 B1	20181212	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : FG4D
EP2185670 B1	20190325	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : LT REF LEGAL EVENT CODE : MG4D
EP2185670 B1	20190415	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : MK05 REF DOCUMENT NUMBER : 1064809 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20181114
EP2185670 B1	20190430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BG NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20190214
EP2185670 B1	20190430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL	COUNTRY OF REF DOCUMENT : LT NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20181114

EP2185670 B1	20190430	LSLE	-PG25	OFFICE TO EPO] LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : HR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20181114
EP2185670 B1	20190430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LV NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20181114
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EP2185670 B1	20190430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IS NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20190314
EP2185670 B1	20190430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NO NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20190214
EP2185670 B1	20190531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20190314
EP2185670 B1	20190531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20190215
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EP2185670 B1	20191031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20181114

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EP2190950 A2	20100602	LSPB	+	published / reissued	
EP2190950 A2	20100602	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20100219
EP2190950 A2	20131225	LSSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20131125
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EP2190950 A2	20160309	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	EFFECTIVE DATE : 20160212
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EP2190950 B1	20161015	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : REF REF DOCUMENT NUMBER : 826878 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20161015
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EP2190950 B1	20161212	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : NO REF LEGAL EVENT CODE : T2 EFFECTIVE DATE : 20160907
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EP2190950 B1	20170224	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : ES REF LEGAL EVENT CODE : FG2A REF DOCUMENT NUMBER : 2603281 COUNTRY OF REF DOCUMENT : ES KIND CODE OF REF DOCUMENT : T3 DESIGNATED STATE(S) : EFFECTIVE DATE : 20170224
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EP2190950 B1	20170428	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : RO NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20160907
EP2190950 B1	20170531	LSLE	-PG25	LAPSED IN A CONTRACTING	COUNTRY OF REF DOCUMENT : IS NOTIFICATIONNOFLAPSE : LAPSE

				STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20170107
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EP2190950 B1	20170531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BG NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20161207
EP2190950 B1	20170531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SK NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20160907
EP2190950 B1	20170608	LSRE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R097 REF DOCUMENT NUMBER : 602008046161 COUNTRY OF REF DOCUMENT : DE
EP2190950 B1	20170726	LSFE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 10
EP2190950 B1	20170816	LSGT	+26N	NO OPPOSITION FILED	EFFECTIVE DATE : 20170608
EP2190950 B1	20170831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20160907
EP2190950 B1	20170929	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL PAYMENT DATE : 20170726 YEAR OF FEE PAYMENT : 10
EP2190950 B1	20171031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT PAYMENT DATE : 20170725 YEAR OF FEE PAYMENT : 10
EP2190950 B1	20171031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20170727 YEAR OF FEE PAYMENT : 10
EP2190950 B1	20171031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20170726 YEAR OF FEE PAYMENT : 10

EP2190950 B1	20171031	LSFE	+PGFP	FROM NATIONAL OFFICE TO EPO] ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES PAYMENT DATE : 20170801 YEAR OF FEE PAYMENT : 10
EP2190950 B1	20171031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CZ PAYMENT DATE : 20170712 YEAR OF FEE PAYMENT : 10
EP2190950 B1	20171031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NO PAYMENT DATE : 20170727 YEAR OF FEE PAYMENT : 10
EP2190950 B1	20171031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH PAYMENT DATE : 20170727 YEAR OF FEE PAYMENT : 10
EP2190950 B1	20171031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20170727 YEAR OF FEE PAYMENT : 10
EP2190950 B1	20171031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FI PAYMENT DATE : 20170727 YEAR OF FEE PAYMENT : 10
EP2190950 B1	20171130	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PL PAYMENT DATE : 20170704 YEAR OF FEE PAYMENT : 10
EP2190950 B1	20171130	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DK PAYMENT DATE : 20170725 YEAR OF FEE PAYMENT : 10
EP2190950 B1	20171130	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE PAYMENT DATE : 20170727 YEAR OF FEE PAYMENT : 10
EP2190950 B1	20171130	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE PAYMENT DATE : 20170727 YEAR OF FEE PAYMENT : 10
EP2190950 B1	20171130	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT PAYMENT DATE : 20170705 YEAR OF FEE PAYMENT : 10

				[ANNOUNCED FROM NATIONAL OFFICE TO EPO]	
EP2190950 B1	20180418	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : MM4A
EP2190950 B1	20180430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20170718
EP2190950 B1	20180629	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LU NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20170718
EP2190950 B1	20180726	LSFE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 11
EP2190950 B1	20180928	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MT NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20170718
EP2190950 B1	20181031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NO PAYMENT DATE : 20180730 YEAR OF FEE PAYMENT : 11
EP2190950 B1	20181031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT PAYMENT DATE : 20180719 YEAR OF FEE PAYMENT : 11
EP2190950 B1	20181031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20180727 YEAR OF FEE PAYMENT : 11
EP2190950 B1	20181031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES PAYMENT DATE : 20180801 YEAR OF FEE PAYMENT : 11
EP2190950 B1	20181031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL PAYMENT DATE : 20180726 YEAR OF FEE PAYMENT : 11
EP2190950 B1	20181031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20180726 YEAR OF FEE PAYMENT : 11

EPO]					
EP2190950 B1	20181130	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PL PAYMENT DATE : 20180703 YEAR OF FEE PAYMENT : 11
EP2190950 B1	20181130	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE PAYMENT DATE : 20180727 YEAR OF FEE PAYMENT : 11
EP2190950 B1	20181130	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20180727 YEAR OF FEE PAYMENT : 11
EP2190950 B1	20181130	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CZ PAYMENT DATE : 20180710 YEAR OF FEE PAYMENT : 11
EP2190950 B1	20181130	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FI PAYMENT DATE : 20180727 YEAR OF FEE PAYMENT : 11
EP2190950 B1	20181130	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT PAYMENT DATE : 20180705 YEAR OF FEE PAYMENT : 11
EP2190950 B1	20181130	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE PAYMENT DATE : 20180727 YEAR OF FEE PAYMENT : 11
EP2190950 B1	20181130	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH PAYMENT DATE : 20180801 YEAR OF FEE PAYMENT : 11
EP2190950 B1	20181130	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DK PAYMENT DATE : 20180727 YEAR OF FEE PAYMENT : 11
EP2190950 B1	20190628	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MC NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20160907
EP2190950 B1	20190628	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA	COUNTRY OF REF DOCUMENT : HU NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE

				POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	WITHIN THE PRESCRIBED TIME-LIMIT; INVALID AB INITIO LAPSED DATE : 20080718
EP2190950 B1	20190715	LSPB	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : UEP REF DOCUMENT NUMBER : 826878 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20160907
EP2190950 B1	20190830	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL PAYMENT DATE : 20190726 YEAR OF FEE PAYMENT : 12
EP2190950 B1	20191031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CY NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20160907
EP2190950 B1	20191031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CZ PAYMENT DATE : 20190717 YEAR OF FEE PAYMENT : 12
EP2190950 B1	20191031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DK PAYMENT DATE : 20190729 YEAR OF FEE PAYMENT : 12
EP2190950 B1	20191031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT PAYMENT DATE : 20190726 YEAR OF FEE PAYMENT : 12
EP2190950 B1	20191031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20190729 YEAR OF FEE PAYMENT : 12
EP2190950 B1	20191031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NO PAYMENT DATE : 20190729 YEAR OF FEE PAYMENT : 12
EP2190950 B1	20191031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES PAYMENT DATE : 20190801 YEAR OF FEE PAYMENT : 12
EP2190950 B1	20191031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FI PAYMENT DATE : 20190729 YEAR OF FEE PAYMENT : 12
EP2190950 B1	20191031	LSFE	+PGFP	ANNUAL FEE	COUNTRY OF REF DOCUMENT : SE

				PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	PAYMENT DATE : 20190729 YEAR OF FEE PAYMENT : 12
EP2190950 B1	20191031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20190725 YEAR OF FEE PAYMENT : 12
EP2190950 B1	20191129	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PL PAYMENT DATE : 20190705 YEAR OF FEE PAYMENT : 12
EP2190950 B1	20191129	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE PAYMENT DATE : 20190729 YEAR OF FEE PAYMENT : 12
EP2190950 B1	20191231	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT PAYMENT DATE : 20190703 YEAR OF FEE PAYMENT : 12
EP2190950 B1	20191231	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20190729 YEAR OF FEE PAYMENT : 12
EP2190950 B1	20200131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH PAYMENT DATE : 20190801 YEAR OF FEE PAYMENT : 12
EP2190950 B1	20280718	PEXP		Calculated Patent Term Expiry	
EP2220194 A2	20100825	LSPB	+	published / reissued	
EP2220194 A2	20100825	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20100608
EP2220194 A2	20140827	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20140729
EP2220194 A2	20150520	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	EFFECTIVE DATE : 20141209
EP2229339 A2	20100922	LSPB	+	published / reissued	
EP2229339 A2	20100922	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20100608
EP2229339 A2	20110907	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20110804
EP2229339 A2	20130228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM	COUNTRY OF REF DOCUMENT : HR NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20120801

EP2229339 A2	20130228	LSLE	-PG25	NATIONAL OFFICE TO EPO] LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CY NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20120801
EP2229339 A2	20130228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IS NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20121201
EP2229339 A2	20130531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : RO NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20120801
EP2229339 A2	20160129	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20151027 YEAR OF FEE PAYMENT : 8
EP2229339 A2	20160129	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20151028 YEAR OF FEE PAYMENT : 8
EP2229339 A2	20160129	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FI PAYMENT DATE : 20151028 YEAR OF FEE PAYMENT : 8
EP2229339 A2	20160229	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20151019 YEAR OF FEE PAYMENT : 8
EP2229339 A2	20160229	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE PAYMENT DATE : 20151028 YEAR OF FEE PAYMENT : 8
EP2229339 A2	20160229	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT PAYMENT DATE : 20151002 YEAR OF FEE PAYMENT : 8
EP2229339 B1	20120801	LSGT	+	granted / extensions (spc, cpc, pte)	
EP2229339 B1	20120801	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : FG4D
EP2229339 B1	20120815	LSNP	REG	REFERENCE TO	REF COUNTRY CODE : CH

EP2229339 B1	20120815	LSNP	REG	A NATIONAL CODE REFERENCE TO A NATIONAL CODE	REF LEGAL EVENT CODE : EP REF COUNTRY CODE : AT REF LEGAL EVENT CODE : REF REF DOCUMENT NUMBER : 568572 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20120815
EP2229339 B1	20120829	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : FG4D
EP2229339 B1	20120927	LSPB	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R096 REF DOCUMENT NUMBER : 602008017688 COUNTRY OF REF DOCUMENT : DE EFFECTIVE DATE : 20120927
EP2229339 B1	20121212	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : NL REF LEGAL EVENT CODE : VDEP EFFECTIVE DATE : 20120801
EP2229339 B1	20130125	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : LT REF LEGAL EVENT CODE : MG4D EFFECTIVE DATE : 20120801
EP2229339 B1	20130131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CY NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20120801
EP2229339 B1	20130131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LT NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20120801
EP2229339 B1	20130131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IS NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20121201
EP2229339 B1	20130131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : HR NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20120801
EP2229339 B1	20130131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NO NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20121101
EP2229339 B1	20130228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PT NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20121203
EP2229339 B1	20130228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE	COUNTRY OF REF DOCUMENT : PL NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A

				[ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20120801
EP2229339 B1	20130228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20120801
EP2229339 B1	20130228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LV NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20120801
EP2229339 B1	20130228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20121102
EP2229339 B1	20130228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20120801
EP2229339 B1	20130329	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20120801
EP2229339 B1	20130430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CZ NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20120801
EP2229339 B1	20130430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20121112
EP2229339 B1	20130430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DK NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20120801
EP2229339 B1	20130430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED	COUNTRY OF REF DOCUMENT : EE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE

				VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20120801
EP2229339 B1	20130430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : RO NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20120801
EP2229339 B1	20130531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20120801
EP2229339 B1	20130531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MC NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20121031
EP2229339 B1	20130531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SK NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20120801
EP2229339 B1	20130531	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : PL
EP2229339 B1	20130612	LSOP	-26	OPPOSITION FILED	PARTYTYPE : OPPONENT OPPONENT : NESTE OIL OYJ EFFECTIVE DATE : 20130430
EP2229339 B1	20130731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LI NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20121031
EP2229339 B1	20130731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BG NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20121101
EP2229339 B1	20130731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20121031
EP2229339 B1	20130731	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : MM4A
EP2229339 B1	20130801	LSOP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R026 REF DOCUMENT NUMBER : 602008017688

					COUNTRY OF REF DOCUMENT : DE EFFECTIVE DATE : 20130430
EP2229339 B1	20131031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20121029
EP2229339 B1	20131129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MT NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20120801
EP2229339 B1	20140430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : TR NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20120801
EP2229339 B1	20140530	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LU NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20121029
EP2229339 B1	20140731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : HU NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20081029
EP2229339 B1	20150812	LSOP	-R26	OPPOSITION FILED (CORRECTED)	PARTY TYPE : OPPONENT OPPONENT : NESTE OIL OYJ EFFECTIVE DATE : 20130430
EP2229339 B1	20151019	LSFE	REG	REFERENCE TO A NATIONAL CODE	COUNTRY OF REF DOCUMENT : FR REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 8
EP2229339 B1	20160406	LSOP	-R26	OPPOSITION FILED (CORRECTED)	PARTY TYPE : OPPONENT OPPONENT : NESTE OIL OYJ EFFECTIVE DATE : 20130430
EP2229339 B1	20161025	LSFE	REG	REFERENCE TO A NATIONAL CODE	COUNTRY OF REF DOCUMENT : FR REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 9
EP2229339 B1	20170125	LSOP	-R26	OPPOSITION FILED (CORRECTED)	PARTY TYPE : OPPONENT OPPONENT : NESTE OYJ EFFECTIVE DATE : 20130430
EP2229339 B1	20170131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20161025 YEAR OF FEE PAYMENT : 9
EP2229339 B1	20170131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20161027 YEAR OF FEE PAYMENT : 9

EPO]					
EP2229339 B1	20170131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FI PAYMENT DATE : 20161027 YEAR OF FEE PAYMENT : 9
EP2229339 B1	20170131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20161027 YEAR OF FEE PAYMENT : 9
EP2229339 B1	20170228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT PAYMENT DATE : 20161004 YEAR OF FEE PAYMENT : 9
EP2229339 B1	20170228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE PAYMENT DATE : 20161027 YEAR OF FEE PAYMENT : 9
EP2229339 B1	20170419	LSOP	-R26	OPPOSITION FILED (CORRECTED)	PARTYTYPE : OPPONENT OPPONENT : NESTE OYJ EFFECTIVE DATE : 20130430
EP2229339 B1	20170426	LSOP	-R26	OPPOSITION FILED (CORRECTED)	PARTYTYPE : OPPONENT OPPONENT : NESTE OYJ EFFECTIVE DATE : 20130430
EP2229339 B1	20171025	LSFE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 10
EP2229339 B1	20180131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FI PAYMENT DATE : 20171027 YEAR OF FEE PAYMENT : 10
EP2229339 B1	20180131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20171025 YEAR OF FEE PAYMENT : 10
EP2229339 B1	20180131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20171027 YEAR OF FEE PAYMENT : 10
EP2229339 B1	20180228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20171027 YEAR OF FEE PAYMENT : 10
EP2229339 B1	20180228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT PAYMENT DATE : 20171004 YEAR OF FEE PAYMENT : 10
EP2229339 B1	20180228	LSFE	+PGFP	ANNUAL FEE PAID TO	COUNTRY OF REF DOCUMENT : SE PAYMENT DATE : 20171027

				NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	YEAR OF FEE PAYMENT : 10
EP2229339 B1	20180613	LSOP	-R26	OPPOSITION FILED (CORRECTED)	PARTYTYPE : OPPONENT OPPONENT : NESTE OYJ EFFECTIVE DATE : 20130430
EP2229339 B1	20181025	LSFE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 11
EP2229339 B1	20190131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FI PAYMENT DATE : 20181029 YEAR OF FEE PAYMENT : 11
EP2229339 B1	20190131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE PAYMENT DATE : 20181029 YEAR OF FEE PAYMENT : 11
EP2229339 B1	20190131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT PAYMENT DATE : 20181003 YEAR OF FEE PAYMENT : 11
EP2229339 B1	20190131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20181029 YEAR OF FEE PAYMENT : 11
EP2229339 B1	20190228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20181029 YEAR OF FEE PAYMENT : 11
EP2229339 B1	20190228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20181025 YEAR OF FEE PAYMENT : 11
EP2229339 B1	20200131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FI PAYMENT DATE : 20191029 YEAR OF FEE PAYMENT : 12
EP2229339 B1	20200131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE PAYMENT DATE : 20191029 YEAR OF FEE PAYMENT : 12
EP2229339 B1	20200131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20191029 YEAR OF FEE PAYMENT : 12
EP2229339 B1	20200228	LSFE	+PGFP	ANNUAL FEE	COUNTRY OF REF DOCUMENT : FR

				PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	PAYMENT DATE : 20191025 YEAR OF FEE PAYMENT : 12
EP2229339 B1	20281029	PEXP		Calculated Patent Term Expiry	
EP2238084 A1	20101013	LSPB	+	published / reissued	
EP2238084 A1	20101013	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20100608
EP2238084 A1	20120411	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20120309
EP2238084 A1	20140813	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	EFFECTIVE DATE : 20140716
EP2238084 A1	20161031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20160726 YEAR OF FEE PAYMENT : 9
EP2238084 A1	20161031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FI PAYMENT DATE : 20160727 YEAR OF FEE PAYMENT : 9
EP2238084 A1	20161130	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20160726 YEAR OF FEE PAYMENT : 9
EP2238084 B1	20141224	LSGT	+	granted / extensions (spc, cpc, pte)	
EP2238084 B1	20141224	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : FG4D
EP2238084 B1	20141231	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP
EP2238084 B1	20150114	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : FG4D
EP2238084 B1	20150115	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : REF REF DOCUMENT NUMBER : 703018 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20150115
EP2238084 B1	20150219	LSPB	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R096 REF DOCUMENT NUMBER : 602008036028 COUNTRY OF REF DOCUMENT : DE EFFECTIVE DATE : 20150219
EP2238084 B1	20150429	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : NL REF LEGAL EVENT CODE : VDEP EFFECTIVE DATE : 20141224
EP2238084 B1	20150430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NO NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20150324

EP2238084 B1	20150430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20141224
EP2238084 B1	20150525	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : LT REF LEGAL EVENT CODE : MG4D
EP2238084 B1	20150529	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150325
EP2238084 B1	20150529	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LV NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20141224
EP2238084 B1	20150529	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : HR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20141224
EP2238084 B1	20150615	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : MK05 REF DOCUMENT NUMBER : 703018 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20141224
EP2238084 B1	20150630	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20141224
EP2238084 B1	20150731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : EE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20141224
EP2238084 B1	20150731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SK NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20141224
EP2238084 B1	20150731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20141224

EP2238084 B1	20150731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : RO NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20141224
EP2238084 B1	20150731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CZ NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20141224
EP2238084 B1	20150831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20141224
EP2238084 B1	20150831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PL NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20141224
EP2238084 B1	20150831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IS NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150424
EP2238084 B1	20150925	LSRE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R097 REF DOCUMENT NUMBER : 602008036028 COUNTRY OF REF DOCUMENT : DE
EP2238084 B1	20151030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DK NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20141224
EP2238084 B1	20151202	LSGT	+26N	NO OPPOSITION FILED	EFFECTIVE DATE : 20150925
EP2238084 B1	20151231	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20141224
EP2238084 B1	20160229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MC NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20141224
EP2238084 B1	20160229	LSLE	-PG25	LAPSED IN A CONTRACTING	COUNTRY OF REF DOCUMENT : SI NOTIFICATIONOFLAPSE : LAPSE

				STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20141224
EP2238084 B1	20160229	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : PL
EP2238084 B1	20160323	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	REF COUNTRY CODE : EP EFFECTIVE DATE : 20150718
EP2238084 B1	20160331	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LU NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20150718
EP2238084 B1	20160420	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : MM4A
EP2238084 B1	20160429	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20150731
EP2238084 B1	20160429	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20150718
EP2238084 B1	20160429	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20150731
EP2238084 B1	20160531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20141224
EP2238084 B1	20160726	LSFE	REG	REFERENCE TO A NATIONAL CODE	COUNTRY OF REF DOCUMENT : FR REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 9
EP2238084 B1	20160729	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20150718
EP2238084 B1	20161130	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED	COUNTRY OF REF DOCUMENT : SE PAYMENT DATE : 20160727 YEAR OF FEE PAYMENT : 9

				FROM NATIONAL OFFICE TO EPO]	
EP2238084 B1	20170331	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20141224
EP2238084 B1	20170531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : HU NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT; INVALID AB INITIO LAPSED DATE : 20080718
EP2238084 B1	20170531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BG NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20141224
EP2238084 B1	20170630	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CY NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20141224
EP2238084 B1	20170726	LSFE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 10
EP2238084 B1	20170831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : TR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20141224
EP2238084 B1	20171031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20170726 YEAR OF FEE PAYMENT : 10
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EP2238084 B1	20180726	LSFE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 11
EP2238084 B1	20180731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PT NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20141224
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EP2238084 B1	20280718	PEXP		Calculated Patent Term Expiry	
EP3135747 A1	20170301	LSPB	+	published / reissued	
EP3135747 A1	20170816	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20170704

EP3135747 A1	20180801	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20180702
ES2603281 T3	20170224	LSGT	+	granted / extensions (spc, cpc, pte)	
ES2603281 T3	20280718	PEXP		Calculated Patent Term Expiry	
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FI122786 B	20120629	LSGT	+FG	PATENT GRANTED	REF DOCUMENT NUMBER : 122786 COUNTRY OF REF DOCUMENT : FI KIND CODE OF REF DOCUMENT : B DESIGNATED STATE(S) :
FI122786 B	20130403	LSOP	MD	OPPOSITION FILED	PARTYTYPE : OPPONENT OPPONENT : NESTE OIL OYJ
FI122786 B	20160229	LSLE	-MM	PATENT LAPSED	
FI122786 B	20270720	PEXP		Calculated Patent Term Expiry	
FI20075557 A	20090318	LSPB	+	published / reissued	
FI20075794 A	20090510	LSPB	+	published / reissued	
FI20075794 A	20141030	LSLE	-FD	APPLICATION LAPSED	
IN00573KN2010 A	20100514	LSPB	+	published / reissued	
JP2010534184 T2	20110624	LSRE	A521	WRITTEN AMENDMENT	TEXT : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20110623
JP2010534184 T2	20110624	LSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	TEXT : JAPANESE INTERMEDIATE CODE: A621 EFFECTIVE DATE : 20110623
JP2010534184 T2	20130612	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	TEXT : JAPANESE INTERMEDIATE CODE: A131 EFFECTIVE DATE : 20130611
JP2010534184 T2	20140205	LSRV	-A02	DECISION OF REFUSAL	TEXT : JAPANESE INTERMEDIATE CODE: A02 EFFECTIVE DATE : 20140204
KR101435991 B1	20140904	LSGT	+	granted / extensions (spc, cpc, pte)	
KR101435991 B1	20170826	LSLE	-LAPS	LAPSE DUE TO UNPAID ANNUAL FEE	
KR101435991 B1	20280718	PEXP		Calculated Patent Term Expiry	
KR20100076940 A	20100706	LSPB	+	published / reissued	
KR20100076940 A	20130705	LSES	A201	REQUEST FOR EXAMINATION	
KR20100076940 A	20140527	LSGT	+E701	DECISION TO GRANT OR REGISTRATION OF PATENT RIGHT	
PL2190950 T3	20170428	LSGT	+	granted / extensions (spc, cpc, pte)	
RU2010119341 A	20111220	LSPB	+	published / reissued	
RU2010119342 A	20111220	LSPB	+	published / reissued	
RU2010119343 A	20111220	LSPB	+	published / reissued	
RU2010121237 A	20111210	LSPB	+	published / reissued	
RU2459857 C2	20120827	LSGT	+	granted / extensions (spc, cpc, pte)	

RU2459857 C2	20280718	PEXP		Calculated Patent Term Expiry	
RU2480425 C2	20130427	LSGT	+	granted / extensions (spc, cpc, pte)	
RU2480425 C2	20280718	PEXP		Calculated Patent Term Expiry	
RU2489348 C2	20130810	LSGT	+	granted / extensions (spc, cpc, pte)	
RU2489348 C2	20281029	PEXP		Calculated Patent Term Expiry	
RU2491319 C2	20130827	LSGT	+	granted / extensions (spc, cpc, pte)	
RU2491319 C2	20150820	LSLE	-MM4A	THE PATENT IS INVALID DUE TO NON- PAYMENT OF FEES	EFFECTIVE DATE : 20141101
RU2491319 C2	20281031	PEXP		Calculated Patent Term Expiry	
US10407304 BB	20190910	LSGT	+	granted / extensions (spc, cpc, pte)	
US10407304 BB	20160302	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : UPM-KYMMENE OYJ, FINLAND OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:KUKKONEN, PETRI; KNUUTTILA, PEKKA; JOKELA, PEKKA; REEL/FRAME:037873/0395 EFFECTIVE DATE : 20160216
US10407304 BB	20360229	PEXP		Calculated Patent Term Expiry (PTA 82 days)	
US2010280137 AA	20101104	LSPB	+	published / reissued	
US2010280137 AA	20110909	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : UPM-KYMMENE CORPORATION, FINLAND OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:KUKKONEN, PETRI; KNUUTTILA, PEKKA; JOKELA, PEKKA; SIGNING DATES FROM 20100503 TO 20100512; REEL/FRAME:026877/0432
US2010280137 AA	20150826	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US2010288458 AA	20101118	LSPB	+	published / reissued	
US2010288458 AA	20100825	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : UPM-KYMMENE OYJ, FINLAND OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:KARLSSON, MARKKU; JOKELA, PEKKA; KUKKAMAKI, ESKO; SIGNING DATES FROM 20100503 TO 20100525; REEL/FRAME:024883/0611
US2010288458 AA	20131216	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	
US2010305220 AA	20101202	LSPB	+	published / reissued	
US2010305220 AA	20160817	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US2010317749 AA	20101216	LSPB	+	published / reissued	
US2010317749 AA	20131106	LSGT	STCF	INFORMATION ON STATUS: PATENT	TEXT : PATENTED CASE

GRANT					
US2010317903 AA	20101216	LSPB	+	published / reissued	
US2010317903 AA	20100825	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : UPM-KYMMENE OYJ, FINLAND OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:KNUUTTILA, PEKKA; REEL/FRAME:024883/0041 EFFECTIVE DATE : 20100806
US2010317903 AA	20140716	LSWD	-ABD2	Abandoned -- Failure to Pay Issue Fee	
US2010317905 AA	20101216	LSPB	+	published / reissued	
US2010317905 AA	20100823	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : UPM-KYMMENE OYJ, FINLAND OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:KUKKONEN, PETRI; KNUUTTILA, PEKKA; JOKELA, PEKKA; SIGNING DATES FROM 20100805 TO 20100809; REEL/FRAME:024870/0711
US2010317905 AA	20160224	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	
US2016083252 AA	20160324	LSPB	+	published / reissued	
US2016083252 AA	20170803	LSES	NFA1	Non Final Action Mailed	
US2016083252 AA	20171019	LSES	-NFA2	Non Final Action Counted, Not Yet Mailed	
US2016083252 AA	20171025	LSES	NFA1	Non Final Action Mailed	
US2016083252 AA	20181005	LSES	NFA1	Non Final Action Mailed	
US2016083252 AA	20190513	LSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US2016083252 AA	20190724	LSFE	+PPR1	Publications -- Issue Fee Payment Received	
US2016083252 AA	20190731	LSFE	+PPV1	Publications -- Issue Fee Payment Verified	
US2016083252 AA	20190821	LSGT	PAT1	Patented Case	
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US8591737 BB	20100823	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : UPM-KYMMENE OYJ, FINLAND OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:KUKKONEN, PETRI; KNUUTTILA, PEKKA; JOKELA, PEKKA; SIGNING DATES FROM 20100805 TO 20100809; REEL/FRAME:024872/0393
US8591737 BB	20131106	LSGT	PAT1	Patented Case	
US8591737 BB	20170526	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US8591737 BB	20291021	PEXP		Calculated Patent Term Expiry (PTA 460 days)	

US9133027 BB	20150915	LSGT	+	granted / extensions (spc, cpc, pte)	
US9133027 BB	20150826	LSGT	PAT1	Patented Case	
US9133027 BB	20190315	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US9133027 BB	20291006	PEXP		Calculated Patent Term Expiry (PTA 445 days)	
US9434615 BB	20160906	LSGT	+	granted / extensions (spc, cpc, pte)	
US9434615 BB	20100823	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : UPM-KYMMENE OYJ, FINLAND OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:KUKKONEN, PETRI; KNUUTTILA, PEKKA; JOKELA, PEKKA; SIGNING DATES FROM 20100503 TO 20100512; REEL/FRA:024872/0540
US9434615 BB	20160801	LSFE	+PPV1	Publications -- Issue Fee Payment Verified	
US9434615 BB	20160817	LSGT	PAT1	Patented Case	
US9434615 BB	20200306	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US9434615 BB	20311210	PEXP		Calculated Patent Term Expiry (PTA 1240 days)	
WO09013232 A2	20090129	LSPB	+	published / reissued	
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PHASE					
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WO09059920 A2	20081029	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 200880123999.1 COUNTRY OF REF DOCUMENT : CN
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WO09059920 A3	20100823	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 12742213 COUNTRY OF REF DOCUMENT : US
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WO09059936 A2	20090514	LSPB	+	published / reissued	
WO09059936 A2	20081031	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 200880124033.X COUNTRY OF REF DOCUMENT : CN
WO09059936 A3	20100506	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2705066 COUNTRY OF REF DOCUMENT : CA
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WO09059936 A3	20100612	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : PI 2010002076 COUNTRY OF REF DOCUMENT : MY
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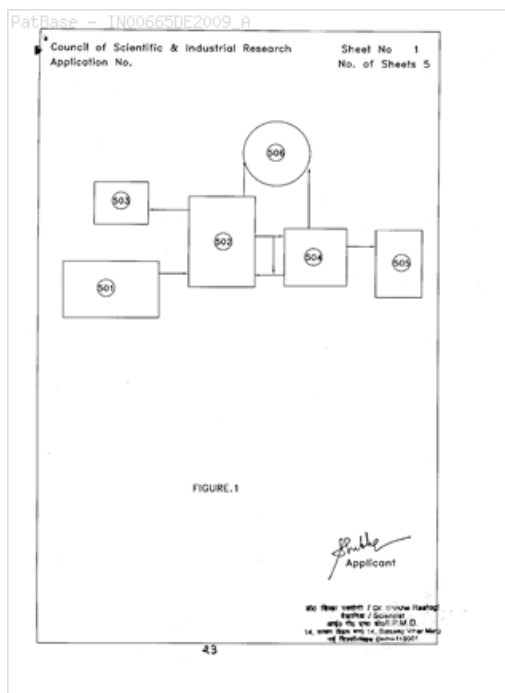
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ZA201001128 A	20101027	LSGT	+	granted / extensions (spc, cpc, pte)	
ZA201001128 A	20300215	PEXP		Calculated Patent Term Expiry	

Title: AN IMPROVED METHOD AND A DEVICE FOR SEPARATION OF FATS AND SUSPENDED SOLIDS FROM WASTEWATER

Abstract: A biological method is devised by which fats and solids in wastewaters are separated and removed for further recovery or treatments. The process is established by mixing of the wastewaters with **anaerobic** sludge under biological conditions, resulting in biochemical reactions to produce metabolites including gases, and enabling separation of fats and solids from suspended and colloidal constituents which are otherwise affected the decontamination treatments, especially **anaerobic** and aerobic methods. In the process biologically separated fats and solids are floated and accumulated over the liquid in the system. The individually segregated fats and solids or as their combined sludge is removed at least by a device presented where sludge is allowed to drain or sucked from the top of the liquid and collected for further processing while the gas out put, if any from the system can be tapped for energy applications separately. The present invention enables simultaneously to clarify complex wastewaters by removing the fats or solids and leaving mainly the dissolved impurities for their trouble free and effective treatment further, in case required.

Classifications:

International (IPC 8-9): C02F3/00 (Advanced/Invention)



Family:

Publication number	Publication date	Application number	Application date
IN00665DE2009 A	20101015	IN2009DE00665	20090331
IN279467 B	20170127	IN2009DE00665	20090331

Priority:

IN2009DE00665 20090331

Probable Assignee: COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH

Assignee(s): COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH

Inventor(s): AJIT HARIDAS ; VATTACKATT BALAKRISHNAN MANILAL

Legal status (INPADOC)

[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
IN00665DE2009 A	20101015	LSPB	+	published / reissued	
IN279467 B	20170127	LSGT	+	granted / extensions (spc, cpc, pte)	
IN279467 B	20290331	PEXP		Calculated Patent Term Expiry	

Title: USE OF ELECTROSPUN MICROTUBES FOR DRUG DELIVERY

Abstract: Provided is a method of delivering a medicament or a diagnostic agent to a subject in need thereof by (a) introducing a microtube configured to deliver the medicament or the diagnostic agent into the subject, said microtube comprises an electrospun shell and an electrospun coat over an internal surface of said shell, and (b) administering the medicament or the diagnostic agent through said microtube, thereby delivering the medicament or the diagnostic agent to the subject. Also provided are kits for delivering a medicament or a diagnostic agent.

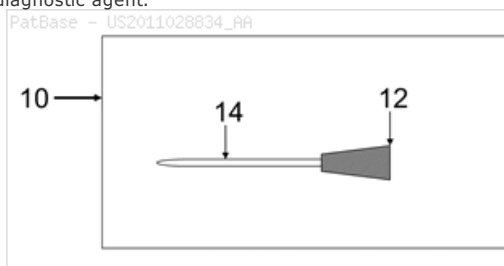
Classifications:

International (IPC 8-9): A61B6/00 A61K38/43 A61K38/44 A61K38/45 A61K38/46 A61K38/47 A61K38/48 A61K9/00 A61K9/70 A61M1/34 A61M25/00 A61M5/142 A61P43/00 A62D3/02 B01D15/00 B01D69/08 B01J19/00 B01L3/00 B29C47/06 B32B1/08 B82Y30/00 C02F1/28 C02F1/58 C02F3/00 C02F3/10 C02F3/34 C09D167/04 C09D171/02 C12M1/12 C12M1/40 C12M3/06 C12N1/20 C12N11/04 C12N9/00 C12Q1/02 C12Q1/66 D01D5/00 D01D5/24 D01D5/247 D01D5/34 D01F1/08 D01F1/10 D01F8/14 G01N33/50 G01N33/53 G01N33/543 (Advanced/Invention); C02F101/18 C02F101/20 C02F101/30 C02F101/36 (Advanced/Non-invention);

A61K9/00 A61K9/70 A61M1/34 A61M5/142 B01D69/00 B01J19/00 B01L3/00 C02F1/58 C02F3/00 D01D5/00 D01D5/34 D01F1/10 D01F8/14 G01N33/50 G01N33/53 (Core/Invention) **CPC:** A61K9/0092 C12N11/04 A61K38/44 C12Y114/16001 C12Q1/66 C12Y113/12007 C12M21/18 C12M23/06 C09D167/04 C09D171/02 C12M23/16 G01N2333/90241 B82Y30/00 C02F3/102 C02F3/34 C02F3/342 C02F2101/18 C02F2101/20 C02F2101/306 C02F2101/36 C02F2305/08 D01D5/003 D01D5/247 D01F1/10 D01F8/14 G01N33/54393 Y02W10/15 Y10T428/1393

European: B82Y30/00 C02F3/10C C02F3/34 C02F3/34B D01D5/00E2D D01D5/24 D01D5/247 D01F1/10 D01F8/14 G01N33/543M M02F101/18 M02F101/20 M02F101/30P M02F101/36 M02F305/08

US: 1/1 210/502.1 210/502.100S 210/615 210/615S 210/679 210/679S 264/464 264/464S 264/465 264/465S 424/422 424/422P 424/94.1 424/94.100S 424/94.4 424/94.400S 424/94.5 424/94.500S 424/94.6 424/94.600S 424/94.61 424/94.610S 424/94.63 424/94.630S 428/36.91 428/36.910S 435/180 435/183 435/183S 435/253.3 435/253.300S 435/262 435/262S 435/287.9 435/287.900S 435/29 435/29P 436/501 436/501S 600/431 600/431P 604/500 604/500S 604/523 604/523S

**Family:**

Publication number	Publication date	Application number	Application date
DE602009024243 D1	20140703	DE200960024243T	20090212
DE602009030326 D1	20150513	DE200960030326T	20090212
DE602009030327 D1	20150513	DE200960030327T	20090212
EP2250302 A2	20101117	EP20090712148	20090212
EP2250302 B1	20140521	EP20090712148	20090212
EP2265751 A2	20101229	EP20090713264	20090212
EP2265751 B1	20150401	EP20090713264	20090212
EP2281079 A2	20110209	EP20090713280	20090212
EP2281079 B1	20150401	EP20090713280	20090212
ES2483465 T3	20140806	ES20090712148T	20090212
US2011028834 AA	20110203	US20090918377	20090212
US2011039296 AA	20110217	US20090918365	20090212
US2011081394 AA	20110407	US20090918372	20090212
US2017002343 AA	20170105	US20160254317	20160901
US2017002481 AA	20170105	US20160254215	20160901
US2020087649 AA	20200319	US20190388617	20190418
US2020087650 AA	20200319	US20190403728	20190506
US9297094 BB	20160329	US20090918377	20090212
US9464368 BB	20161011	US20090918372	20090212
US9469919 BB	20161018	US20090918365	20090212
WO09104174 A2	20090827	WO2009IL00169	20090212
WO09104174 A3	20091112	WO2009IL00169	20090212
WO09104175 A2	20090827	WO2009IL00170	20090212
WO09104175 A3	20091119	WO2009IL00170	20090212
WO09104176 A2	20090827	WO2009IL00171	20090212
WO09104176 A3	20091112	WO2009IL00171	20090212

Priority:

US20080064204P	20080221	US20080064204	20080221	US20080064206	20080221
US20080064210P	20080221	US20080064206P	20080221	US20080064210	20080221
EP20090712148	20090212	EP20090713264	20090212	EP20090713280	20090212
US20090918377	20090212	US20090918365	20090212	US20090918372	20090212
WO2009IL00170	20090212	WO2009IL00171	20090212	WO2009IL00169	20090212
US20100918365	20101104	US20100918372	20101216	US20160254317	20160901
US20160254215	20160901	US20190388617	20190418	US20190403728	20190506

Probable Assignee: TECHNION RESEARCH AND DEVELOPMENT FOUNDATION LTD

Assignee(s): (std): DROR Yael ; GREEN MICHAL ; KLEIN SHIRI ; KUHN JONATHAN CHARLES ; TECHNION RES AND DEV FOUNDATION ; ZUSSMAN EYAL ; TECHNION RES AND DEVELOPMENT FOUNDATION LTD

Assignee(s): TECHNION RESEARCH AND DEVELOPMENT FOUNDATION LTD

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Agent(s): NOVAGRAAF; FICHTER ROBERT ARNO; DENNEMEYER AND ASSOCIATES SA; DENNEMEYER AND ASSOCIATES S A; DE ELZABURU ALBERTO; MARTIN D MOYNIHAN D B A PRISI INC; ROY GROSS LAW FIRM LLC; ROY; G E EHRICH 1995 LTD; G E EHRICH 1995 LTD 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 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 OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
EP2250302 A2	20101117	LSPB	+	published / reissued	
EP2250302 A2	20101117	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20100916
EP2250302 A2	20120822	LSSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20120719
EP2250302 A2	20140108	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	EFFECTIVE DATE : 20131210
EP2250302 A2	20160429	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20160218 YEAR OF FEE PAYMENT : 8
EP2250302 A2	20160429	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES PAYMENT DATE : 20160210 YEAR OF FEE PAYMENT : 8
EP2250302 A2	20160429	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT PAYMENT DATE : 20160223 YEAR OF FEE PAYMENT : 8
EP2250302 A2	20160531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20160217 YEAR OF FEE PAYMENT : 8
EP2250302 A2	20160531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20160218 YEAR OF FEE PAYMENT : 8
EP2250302 B1	20140521	LSGT	+	granted / extensions (spc, cpc, pte)	
EP2250302 B1	20140521	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : FG4D
EP2250302 B1	20140530	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP
EP2250302 B1	20140615	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : REF REF DOCUMENT NUMBER : 669669 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20140615
EP2250302 B1	20140618	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : FG4D
EP2250302 B1	20140703	LSPB	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R096 REF DOCUMENT NUMBER : 602009024243 COUNTRY OF REF DOCUMENT : DE EFFECTIVE DATE : 20140703
EP2250302 B1	20140806	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : ES REF LEGAL EVENT CODE : FG2A REF DOCUMENT NUMBER : 2483465 COUNTRY OF REF DOCUMENT : ES KIND CODE OF REF DOCUMENT : T3 DESIGNATED STATE(S) : EFFECTIVE DATE : 20140806
EP2250302 B1	20141015	LSRV	REG	REFERENCE TO A	REF COUNTRY CODE : AT

				NATIONAL CODE	REF LEGAL EVENT CODE : MK05 REF DOCUMENT NUMBER : 669669 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20140521
EP2250302 B1	20141015	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : NL REF LEGAL EVENT CODE : VDEP EFFECTIVE DATE : 20140521
EP2250302 B1	20141027	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : LT REF LEGAL EVENT CODE : MG4D
EP2250302 B1	20141031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140822
EP2250302 B1	20141031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140521
EP2250302 B1	20141031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140521
EP2250302 B1	20141031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IS NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140921
EP2250302 B1	20141031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NO NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140821
EP2250302 B1	20141128	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : HR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140521
EP2250302 B1	20141128	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LV NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140521
EP2250302 B1	20141128	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140521
EP2250302 B1	20141128	LSLE	-PG25	LAPSED IN A CONTRACTING	COUNTRY OF REF DOCUMENT : SE

				STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140521
EP2250302 B1	20141128	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PL NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140521
EP2250302 B1	20141231	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140922
EP2250302 B1	20150130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CZ NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140521
EP2250302 B1	20150130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : RO NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140521
EP2250302 B1	20150130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SK NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140521
EP2250302 B1	20150130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : EE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140521
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EP2250302 B1	20150130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140521
EP2250302 B1	20150224	LSRE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R097 REF DOCUMENT NUMBER : 602009024243 COUNTRY OF REF DOCUMENT : DE
EP2250302 B1	20150227	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA	COUNTRY OF REF DOCUMENT : NL NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT

				POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140521
EP2250302 B1	20150429	LSGT	+26N	NO OPPOSITION FILED	EFFECTIVE DATE : 20150224
EP2250302 B1	20150603	LSRE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R097 REF DOCUMENT NUMBER : 602009024243 COUNTRY OF REF DOCUMENT : DE EFFECTIVE DATE : 20150224
EP2250302 B1	20150731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140521
EP2250302 B1	20150930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LU NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150212
EP2250302 B1	20150930	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : PL
EP2250302 B1	20151030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20150228
EP2250302 B1	20151030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20150228
EP2250302 B1	20151030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MC NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140521
EP2250302 B1	20151118	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : MM4A
EP2250302 B1	20160129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20150212
EP2250302 B1	20160218	LSFE	REG	REFERENCE TO A NATIONAL CODE	COUNTRY OF REF DOCUMENT : FR REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 8
EP2250302 B1	20161230	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140521
EP2250302 B1	20170126	LSFE	REG	REFERENCE TO A NATIONAL CODE	COUNTRY OF REF DOCUMENT : FR REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP

					YEAR OF FEE PAYMENT : 9
EP2250302 B1	20170428	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20170126 YEAR OF FEE PAYMENT : 9
EP2250302 B1	20170428	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20170207 YEAR OF FEE PAYMENT : 9
EP2250302 B1	20170531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BG NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140521
EP2250302 B1	20170531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : HU NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT; INVALID AB INITIO LAPSED DATE : 20090212
EP2250302 B1	20170531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20170208 YEAR OF FEE PAYMENT : 9
EP2250302 B1	20170630	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CY NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140521
EP2250302 B1	20170630	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES PAYMENT DATE : 20170112 YEAR OF FEE PAYMENT : 9
EP2250302 B1	20170630	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT PAYMENT DATE : 20170221 YEAR OF FEE PAYMENT : 9
EP2250302 B1	20170831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : TR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140521
EP2250302 B1	20180629	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MK NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140521
EP2250302 B1	20180829	LSFE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 10
EP2250302 B1	20181031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20180831 YEAR OF FEE PAYMENT : 10
EP2250302 B1	20181031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20180829 YEAR OF FEE PAYMENT : 10

EP2250302 B1	20181130	LSFE	+PGFP	NATIONAL OFFICE TO EPO] ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20180829 YEAR OF FEE PAYMENT : 10
EP2250302 B1	20190228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20180212
EP2250302 B1	20190801	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : ES REF LEGAL EVENT CODE : FD2A EFFECTIVE DATE : 20190801
EP2250302 B1	20191031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20180213
EP2250302 B1	20191031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20190901 YEAR OF FEE PAYMENT : 11
EP2250302 B1	20191031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20190830 YEAR OF FEE PAYMENT : 11
EP2250302 B1	20191231	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20190829 YEAR OF FEE PAYMENT : 11
EP2250302 B1	20290212	PEXP		Calculated Patent Term Expiry	
EP2265751 A2	20101229	LSPB	+	published / reissued	
EP2265751 A2	20101229	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20100917
EP2265751 A2	20120822	LSSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20120719
EP2265751 A2	20141001	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	EFFECTIVE DATE : 20140904
EP2265751 A2	20160429	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20160218 YEAR OF FEE PAYMENT : 8
EP2265751 A2	20160531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20160218 YEAR OF FEE PAYMENT : 8
EP2265751 A2	20160531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20160217 YEAR OF FEE PAYMENT : 8
EP2265751 B1	20150401	LSGT	+	granted / extensions (spc, cpc, pte)	
EP2265751 B1	20150401	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : FG4D
EP2265751 B1	20150415	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP
EP2265751 B1	20150422	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : FG4D

EP2265751 B1	20150513	LSPB	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R096 REF DOCUMENT NUMBER : 602009030326 COUNTRY OF REF DOCUMENT : DE EFFECTIVE DATE : 20150513
EP2265751 B1	20150515	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : REF REF DOCUMENT NUMBER : 719144 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20150515
EP2265751 B1	20150812	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : NL REF LEGAL EVENT CODE : VDEP EFFECTIVE DATE : 20150401
EP2265751 B1	20150815	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : MK05 REF DOCUMENT NUMBER : 719144 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20150401
EP2265751 B1	20150925	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : LT REF LEGAL EVENT CODE : MG4D
EP2265751 B1	20150930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2265751 B1	20151030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2265751 B1	20151030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NO NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150701
EP2265751 B1	20151030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CZ NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2265751 B1	20151030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2265751 B1	20151030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150803
EP2265751 B1	20151030	LSLE	-PG25	LAPSED IN A	COUNTRY OF REF DOCUMENT :

				CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	HR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2265751 B1	20151030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2265751 B1	20151130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IS NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150801
EP2265751 B1	20151130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2265751 B1	20151130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150702
EP2265751 B1	20151130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LV NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2265751 B1	20160105	LSRE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R097 REF DOCUMENT NUMBER : 602009030326 COUNTRY OF REF DOCUMENT : DE
EP2265751 B1	20160129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DK NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2265751 B1	20160129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : EE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2265751 B1	20160218	LSFE	REG	REFERENCE TO A NATIONAL CODE	COUNTRY OF REF DOCUMENT : FR REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 8
EP2265751 B1	20160229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL	COUNTRY OF REF DOCUMENT : SK NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED

				OFFICE TO EPO]	TIME-LIMIT LAPSED DATE : 20150401
EP2265751 B1	20160229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : RO NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20150401
EP2265751 B1	20160229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PL NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2265751 B1	20160309	LSGT	+26N	NO OPPOSITION FILED	EFFECTIVE DATE : 20160105
EP2265751 B1	20160429	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2265751 B1	20160531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20160229
EP2265751 B1	20160531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2265751 B1	20160831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2265751 B1	20160930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LU NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20160212
EP2265751 B1	20160930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MC NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2265751 B1	20160930	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : PL
EP2265751 B1	20161031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20160229
EP2265751 B1	20161031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT	COUNTRY OF REF DOCUMENT : LI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20160229

				INFORMATION FROM NATIONAL OFFICE TO EPO]	
EP2265751 B1	20161130	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : MM4A
EP2265751 B1	20170126	LSFE	REG	REFERENCE TO A NATIONAL CODE	COUNTRY OF REF DOCUMENT : FR REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 9
EP2265751 B1	20170131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20160212
EP2265751 B1	20170428	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20170126 YEAR OF FEE PAYMENT : 9
EP2265751 B1	20170428	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20170207 YEAR OF FEE PAYMENT : 9
EP2265751 B1	20170531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20170208 YEAR OF FEE PAYMENT : 9
EP2265751 B1	20170630	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2265751 B1	20170831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2265751 B1	20180531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CY NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2265751 B1	20180531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : HU NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT; INVALID AB INITIO LAPSED DATE : 20090212
EP2265751 B1	20180629	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20160229
EP2265751 B1	20180629	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MK NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401

EP2265751 B1	20180629	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : TR NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2265751 B1	20180731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BG NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2265751 B1	20180829	LSFE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 10
EP2265751 B1	20181031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20180831 YEAR OF FEE PAYMENT : 10
EP2265751 B1	20181031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20180829 YEAR OF FEE PAYMENT : 10
EP2265751 B1	20181130	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20180829 YEAR OF FEE PAYMENT : 10
EP2265751 B1	20191031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20190830 YEAR OF FEE PAYMENT : 11
EP2265751 B1	20191031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20190901 YEAR OF FEE PAYMENT : 11
EP2265751 B1	20191231	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20190829 YEAR OF FEE PAYMENT : 11
EP2265751 B1	20290212	PEXP		Calculated Patent Term Expiry	
EP2281079 A2	20110209	LSPB	+	published / reissued	
EP2281079 A2	20110209	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20100917
EP2281079 A2	20120822	LSSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20120718
EP2281079 A2	20141001	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	EFFECTIVE DATE : 20140904
EP2281079 A2	20160429	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20160218 YEAR OF FEE PAYMENT : 8
EP2281079 A2	20160531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20160217 YEAR OF FEE PAYMENT : 8
EP2281079 A2	20160531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20160218 YEAR OF FEE PAYMENT : 8

				TO EPO]	
EP2281079 B1	20150401	LSGT	+	granted / extensions (spc, cpc, pte)	
EP2281079 B1	20150401	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : FG4D
EP2281079 B1	20150415	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP
EP2281079 B1	20150422	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : FG4D
EP2281079 B1	20150513	LSPB	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R096 REF DOCUMENT NUMBER : 602009030327 COUNTRY OF REF DOCUMENT : DE EFFECTIVE DATE : 20150513
EP2281079 B1	20150515	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : REF REF DOCUMENT NUMBER : 719143 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20150515
EP2281079 B1	20150812	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : NL REF LEGAL EVENT CODE : VDEP EFFECTIVE DATE : 20150401
EP2281079 B1	20150815	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : MK05 REF DOCUMENT NUMBER : 719143 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20150401
EP2281079 B1	20150925	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : LT REF LEGAL EVENT CODE : MG4D
EP2281079 B1	20150930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2281079 B1	20151030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2281079 B1	20151030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CZ NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2281079 B1	20151030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2281079 B1	20151030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT	COUNTRY OF REF DOCUMENT : NO NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE

				INFORMATION FROM NATIONAL OFFICE TO EPO]	DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150701
EP2281079 B1	20151030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150803
EP2281079 B1	20151030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2281079 B1	20151030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : HR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2281079 B1	20151130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IS NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150801
EP2281079 B1	20151130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LV NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2281079 B1	20151130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2281079 B1	20151130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150702
EP2281079 B1	20160105	LSRE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R097 REF DOCUMENT NUMBER : 602009030327 COUNTRY OF REF DOCUMENT : DE
EP2281079 B1	20160129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : EE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2281079 B1	20160129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DK NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT

LAPSED DATE : 20150401					
EP2281079 B1	20160218	LSFE	REG	REFERENCE TO A NATIONAL CODE	COUNTRY OF REF DOCUMENT : FR REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 8
EP2281079 B1	20160229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : RO NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20150401
EP2281079 B1	20160229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PL NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2281079 B1	20160229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SK NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2281079 B1	20160309	LSGT	+26N	NO OPPOSITION FILED	EFFECTIVE DATE : 20160105
EP2281079 B1	20160429	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2281079 B1	20160531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2281079 B1	20160531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20160229
EP2281079 B1	20160831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2281079 B1	20160930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LU NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20160212
EP2281079 B1	20160930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MC NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2281079 B1	20160930	LSLE	REG	REFERENCE TO A	REF COUNTRY CODE : CH

				NATIONAL CODE	REF LEGAL EVENT CODE : PL
EP2281079 B1	20161031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20160229
EP2281079 B1	20161031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20160229
EP2281079 B1	20161130	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : MM4A
EP2281079 B1	20170126	LSFE	REG	REFERENCE TO A NATIONAL CODE	COUNTRY OF REF DOCUMENT : FR REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 9
EP2281079 B1	20170131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20160212
EP2281079 B1	20170428	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20170207 YEAR OF FEE PAYMENT : 9
EP2281079 B1	20170428	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20170126 YEAR OF FEE PAYMENT : 9
EP2281079 B1	20170531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20170208 YEAR OF FEE PAYMENT : 9
EP2281079 B1	20170630	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2281079 B1	20170831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2281079 B1	20180531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : HU NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT; INVALID AB INITIO LAPSED DATE : 20090212
EP2281079 B1	20180531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CY NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2281079 B1	20180629	LSLE	-PG25	LAPSED IN A CONTRACTING STATE	COUNTRY OF REF DOCUMENT : MT NOTIFICATIONOFLAPSE : LAPSE

				[ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20160229
EP2281079 B1	20180629	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MK NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2281079 B1	20180629	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : TR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2281079 B1	20180731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BG NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150401
EP2281079 B1	20180829	LSFE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 10
EP2281079 B1	20181031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20180831 YEAR OF FEE PAYMENT : 10
EP2281079 B1	20181031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20180829 YEAR OF FEE PAYMENT : 10
EP2281079 B1	20181130	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20180829 YEAR OF FEE PAYMENT : 10
EP2281079 B1	20191031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20190901 YEAR OF FEE PAYMENT : 11
EP2281079 B1	20191031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20190830 YEAR OF FEE PAYMENT : 11
EP2281079 B1	20191231	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20190829 YEAR OF FEE PAYMENT : 11
EP2281079 B1	20290212	PEXP		Calculated Patent Term Expiry	
ES2483465 T3	20140806	LSGT	+	granted / extensions (spc, cpc, pte)	
ES2483465 T3	20290212	PEXP		Calculated Patent Term Expiry	
US2011028834 AA	20110203	LSPB	+	published / reissued	
US2011028834 AA	20160309	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US2011039296 AA	20110217	LSPB	+	published / reissued	
US2011039296 AA	20110319	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER

					OWNER : TECHNION RESEARCH & DEVELOPMENT FOUNDATION LTD., I OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:ZUSSMAN, EYAL; GREEN, MICHAL; KLEIN, SHIRI; SIGNING DATES FROM 20100721 TO 20101014; REEL/FRAME:025985/0269
US2011039296 AA	20160928	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US2011081394 AA	20110407	LSPB	+	published / reissued	
US2011081394 AA	20160921	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US2017002343 AA	20170105	LSPB	+	published / reissued	
US2017002343 AA	20180306	LSES	NFA1	Non Final Action Mailed	
US2017002343 AA	20181019	LSES	NFA1	Non Final Action Mailed	
US2017002343 AA	20190427	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	
US2017002481 AA	20170105	LSPB	+	published / reissued	
US2017002481 AA	20180319	LSES	-NFA2	Non Final Action Counted, Not Yet Mailed	
US2017002481 AA	20180320	LSES	NFA1	Non Final Action Mailed	
US2017002481 AA	20181106	LSES	NFA1	Non Final Action Mailed	
US2017002481 AA	20190606	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	
US2020087649 AA	20200319	LSPB	+	published / reissued	
US2020087650 AA	20200319	LSPB	+	published / reissued	
US9297094 BB	20160329	LSGT	+	granted / extensions (spc, cpc, pte)	
US9297094 BB	20100823	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : TECHNION RESEARCH & DEVELOPMENT FOUNDATION LTD., I OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:ZUSSMAN, EYAL; REEL/FRAME:024869/0021 EFFECTIVE DATE : 20100812
US9297094 BB	20151112	LSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US9297094 BB	20160309	LSGT	PAT1	Patented Case	
US9297094 BB	20191118	LSFE	FEPP	FEE PAYMENT PROCEDURE	TEXT : MAINTENANCE FEE REMINDER MAILED (ORIGINAL EVENT CODE: REM.); ENTITY STATUS OF PATENT OWNER: SMALL ENTITY
US9297094 BB	20290212	PEXP		Calculated Patent Term Expiry	
US9464368 BB	20161011	LSGT	+	granted / extensions (spc, cpc, pte)	
US9464368 BB	20101224	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : TECHNION RESEARCH & DEVELOPMENT FOUNDATION LTD., I OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:ZUSSMAN, EYAL; DROR, Yael; SIGNING DATES FROM 20101201 TO 20101202; REEL/FRAME:025568/0262

US9464368 BB	20160921	LSGT	PAT1	Patented Case	
US9464368 BB	20290214	PEXP		Calculated Patent Term Expiry (PTA 2 days and a terminal disclaimer has been filed)	
US9469919 BB	20161018	LSGT	+	granted / extensions (spc, cpc, pte)	
US9469919 BB	20160615	LSFE	-AWA4	Awaiting TC Resp., Issue Fee Not Paid	
US9469919 BB	20160928	LSGT	PAT1	Patented Case	
US9469919 BB	20300409	PEXP		Calculated Patent Term Expiry (PTA 421 days and a terminal disclaimer has been filed)	
WO09104174 A2	20090827	LSPB	+	published / reissued	
WO09104174 A3	20100824	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO09104174 A3	20100917	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2009713280 COUNTRY OF REF DOCUMENT : EP
WO09104174 A3	20101104	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 12918365 COUNTRY OF REF DOCUMENT : US
WO09104175 A2	20090827	LSPB	+	published / reissued	
WO09104175 A3	20100824	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO09104175 A3	20100916	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2009712148 COUNTRY OF REF DOCUMENT : EP
WO09104175 A3	20101012	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 12918377 COUNTRY OF REF DOCUMENT : US
WO09104176 A2	20090827	LSPB	+	published / reissued	
WO09104176 A3	20100824	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO09104176 A3	20100917	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2009713264 COUNTRY OF REF DOCUMENT : EP
WO09104176 A3	20101216	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 12918372 COUNTRY OF REF DOCUMENT : US

Title: MAINTENANCE-FREE ENHANCEMENT OF AQUATIC BIOLOGICAL FILTERS USING AMPHIPODS

Abstract: The invention is a method and intended apparatus for filtering water in aquaria, fish-rearing tanks, hatchery or other aquatic systems using amphipods, e.g. the *Hyaella azteca*, in the filtering matrix of the managed water system. In particular, the use of amphipods in the filtration system results in maintenance-free operation due to the action and self-sustaining nature of amphipods in these aquatic systems.

Classifications:

International (IPC 8-9): A01K63/04 C02F3/06 C02F3/32 (Advanced/Invention);

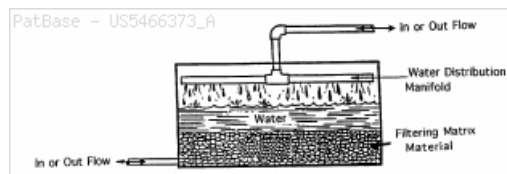
A01K63/04 C02F3/06 C02F3/32 (Core/Invention)

International (IPC 1-7): C02F3/32

CPC: Y02W10/15 A01K63/045 C02F3/06 C02F3/32

European: A01K63/04B C02F3/06 C02F3/32

US: 210/150 210/602 210/617 210/619



Family:

Publication number	Publication date	Application number	Application date
US5466373 A	19951114	US19940231088	19940422

Priority:

US19940231088 19940422

Probable Assignee: UNIV MARYLAND EASTERN SHORE

Assignee(s): (std): UNIV MARYLAND EASTERN SHORE

Assignee(s): UNIVERSITY OF MARYLAND EASTERN SHORE ; OF MARYLAND EASTERN SHORE PRESIDENT S OFFICE EASTE ; OF MARYLAND EASTERN SHORE UNIV

Inventor(s): (std): COUNTS III CLEMENT L ; HANDWERKER THOMAS S

Legal status (INPADOC)

[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
US5466373 A	19951114	LSGT	+	granted / extensions (spc, cpc, pte)	
US5466373 A	19990503	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US5466373 A	20030709	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US5466373 A	20071114	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US5466373 A	20071210	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US5466373 A	20071210	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	TEXT : PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362
US5466373 A	20080101	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 20071114
US5466373 A	20140422	PEXP		Calculated Patent Term Expiry	

Title: PROCESS FOR WASTE WATER **PURIFICATION** AND ACTIVATED SLUDGE PLANT FOR CARRYING OUT THE PROCESS

Abstract: A process for waste water **purification** using an activated sludge aerobic tank is described, which tank is charged with a batch of waste water (effluent) each time the metabolic intensity in the aerobic tank has decreased below a preset value, whereupon the charging is interrupted for a period until the metabolic intensity in the aerobic tank has again decreased below the preset value and the aeration of the aerobic tank being restricted or interrupted each time prior to or beginning with the charging until the nitrate content in the aerobic tank has decreased below a preset value. The process described is characterised in that for the redissolution of phosphate, the waste water is first introduced into an **anaerobic** tank and, under **anaerobic** conditions, is brought into contact with activated sludge, whereupon the mixture of waste water and activated sludge is transferred batchwise to the aerobic tank.

Classifications:

International (IPC 8-9): C02F3/00 C02F3/12

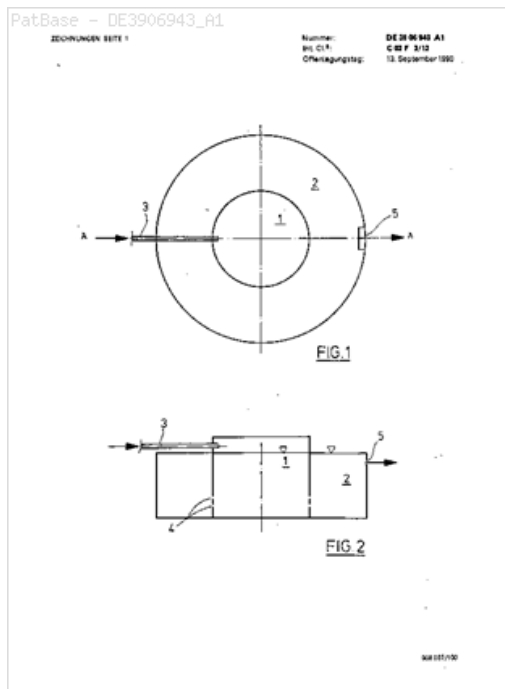
C02F3/30 (Advanced/Invention);

C02F3/00 C02F3/12 C02F3/30 (Core/Invention)

International (IPC 1-7): C02F3/12 C02F3/30

CPC: C02F3/1215 C02F3/006 C02F3/1263 C02F3/308 Y02W10/15

European: C02F3/00R C02F3/12A4 C02F3/12N8 C02F3/30F



Family:

Publication number	Publication date	Application number	Application date
DE3906943 A1	19900913	DE19893906943	19890302
DE3906943 C2	19940303	DE19893906943	19890302

Priority:

DE19893906943 19890302

Probable Assignee: BIODETOX GES ZUR BIOLOG SCHADS

Assignee(s): (std): BIODETOX GES ZUR BIOLOG SCHADS

Assignee(s): BIODETOX GES ZUR BIOLOGISCHEN SCHADSTOFFENTSORGUNG MBH 3061 AHNSEN DE ; BIODETOX GES ZUR BIOLOGISCHEN SCHADSTOFFENTSORGUNG MBH 31708 AHNSEN DE ; BIODETOX GESELLSCHAFT ZUR BIOLOGISCHEN SCHADSTOFFE ; BIODETOX GESELLSCHAFT ZUR BIOLOGISCHEN SCHADSTOFFENTSORGUNG MBH 3061 AHNSEN DE ; BIODETOX GESELLSCHAFT ZUR BIOLOGISCHEN SCHADSTOFFENTSORGUNG MBH 31708 AHNSEN DE

Inventor(s): (std): STOBBE GERHARD DR

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
DE3906943 A1	19900913	LSPB	+	published / reissued	
DE3906943 A1	19900913	LSSES	+OP8	REQUEST FOR EXAMINATION AS TO PARAGRAPH 44 PATENT LAW	
DE3906943 C2	19940303	LSGT	+	granted / extensions (spc, cpc, pte)	
DE3906943 C2	19940303	LSGT	+D2	GRANT AFTER EXAMINATION	
DE3906943 C2	19940901	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DE3906943 C2	19960307	LSLE	-8339	CEASED/NON-PAYMENT OF THE ANNUAL FEE	

Title: ABWASSERREINIGUNGSVERFAHREN FUER PHOSPHATREICHE ABWAESESSER WASTEWATER TREATMENT PROCESS FOR THE PHOSPHATE-RICH WASTE WATER (Machine translation)

Abstract: Source: DD287155A [DE] [Source: Claim 1] 1. Abwasserreinigungsverfahren fuer phosphatreiche Abwaesser In einer aus mehreren Teichen bestehenden Kaskade, dadurch gekennzeichnet, dass Abwaesser, die entweder von vornherein einen CSV-Cr:BSBbeta-Quotienten von §3 besitzen oder durch ein vorhergehendes, uebliches biologisches Reinigungsverfahren auf einen CSV-Cr:BSB6-Quotienten von §3 veraendert worden sind und einen NH-N Gehalt bis maximal 5 mg • T1 besitzen, gemeinsam mit mindestens einem Teil der in der vorhergehenden biologischen Reinigungsstufe anfallenden ueberschussbiomasse und/oder ueberschussbiomasse aus anderen biologischen Abwasserreinigungsstufen in den 1.Teich der Kaskade eingeleitet werden, wobei der Schlammgehalt im Zulauf 1 bis 3 g Trockensubstanz • I™ 1 betraegt, dass das Milieu in diesem 1.Teich der Kaskade streng anaerob gehalten wird, dass die Verweilzeit des Wassers in diesem 1.Teich mindestens 1 Tag bei einer Wassertiefe von mindestens 1 m betraegt, dass die in den 1.Teich eingebrachte ueberschussbiomasse mittels Sedimentation und eines ablaufseitig hydraulisch stabil angeordneten Biofilters in diesem Teich zurueckgehalten wird, dass das Milieu in den sich anschliessenden Teichen der Kaskade von fakultativ anaerob fortschreitend aerob gehalten wird, dass das zu behandelnde Medium in den folgenden Teichen der Kaskade zwecks Trennung der Biozoenosen durch ebenfalls ablaufseitig hydraulisch stabil angeordnete Biofilter gefuehrt wird, dass die Verweilzeiten in diesen Teichen mindestens jeweils 1 Tag betragen und ein Medienfluss durch die gesamte Kaskade laengs ohne Rueckvermischung gewaehrleistet wird. **Machine translation:** [Source: claim 1] 1 wastewater treatment process for phosphate-rich effluents cascade consisting of several ponds characterised in that effluent, the either from the outset a CSV-CR: BSBbeta quotients of section 3 have or by a previous, common biological cleaning method on a CSV-CR: BSB6 quotient of article 3 have been changed and a NH N have salary up to maximum of 5 mg • T1, accumulating surplus biomass and/or surplus biomass from other biological wastewater treatment levels in the 1.Teich of the cascade be initiated together with at least a part of the organic in the preceding level of cleaning, where the content of mud in the inlet 1 to 3 g dry matter • I™ 1 is, that the environment in this 1.Teich of the cascade is maintained strictly **anaerobic**, that the residence time of the water is at least 1 day at a water depth of at least 1 m in this 1.Teich, that is zurueckgehalten in the 1.Teich surplus biomass by means of sedimentation and a hydraulically stable trace-side arranged bio filter in this pond, that the environment in the adjoining ponds of the cascade of facultatively **anaerobic** progressive aerobic is held, the medium to be treated in the following lakes in the cascade for the purpose of separation of communities is carried also drain-side hydraulically stable arranged bio filter that the times be at least 1 day in these ponds and a media flow is ensured by the entire cascade longitudinal without re-mixing.

Classifications:

International (IPC 8-9): C02F3/30 (Advanced/Invention);

C02F3/30 (Core/Invention)

International (IPC 1-7): C02F3/30

Family:

Publication number	Publication date	Application number	Application date
DD287155 A7	19910221	DD19880322808	19881208

Priority:

DD19880322808 19881208

Probable Assignee: GENTHIN WASCHMITTELWERK

Assignee(s): (std): GENTHIN WASCHMITTELWERK

Assignee(s): VEB WASCHMASCHMITTELWERK GENTHIN DE ; VEB WASCHMITTELWERK GENTHIN DE

Inventor(s): (std): BUSSE WERNER ; DIETZ JOCHEN ; WEHDER ULLRICH

Inventor(s): WEHDER ULLRICH DE ; DIETZ JOCHEN DE ; BUSSE WERNER DE

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
DD287155 A7	19910221	LSGT	+	granted / extensions (spc, cpc, pte)	
DD287155 A7	19950524	LSLE	-ENJ	CEASED DUE TO NON-PAYMENT OF RENEWAL FEE	
DD287155 A7	20061208	PEXP		Calculated Patent Term Expiry	

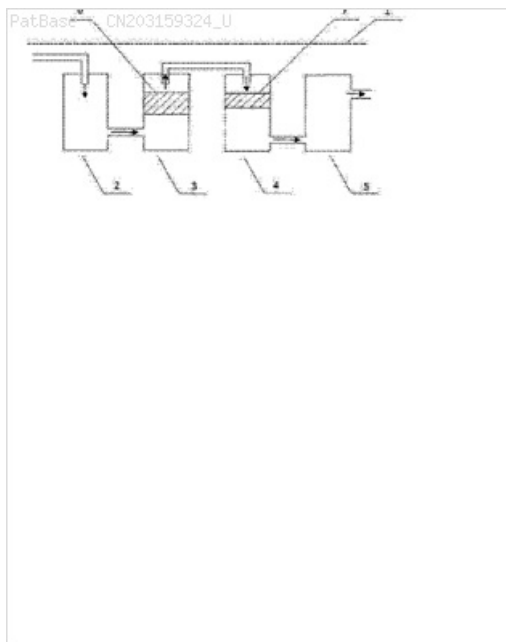
Title: ROUND CONCRETE TYPE SEWAGE TREATMENT UNIT

Abstract: The utility model provides a round concrete type sewage treatment unit. The round concrete type sewage treatment unit is mainly characterized by being successively composed of a regulation control pond, an **anaerobic** filter material pond, a hydrolysis septic pond and an aerobiotic ventilating pond, wherein the upper part of the **anaerobic** filter material pond is provided with a filter material filter layer, the middle part of the **anaerobic** filter material pond is a digestion chamber, and multiple filter materials are arranged in the **anaerobic** filter material pond; anaerobes are attached to pond walls and the filter materials, a round partition plate is arranged on the lower part of the pond, and multiple small holes are formed in the round partition plate; and the hydrolysis septic pond are internally provided with a partition plate, a particle valve body is arranged on the partition plate in the hydrolysis septic pond, and a multi-layer **anaerobic** expanded bed is formed. According to the technical scheme adopted by the round concrete type sewage treatment unit provided by the utility model, large sundries in sewage are filtered through a grid, and then the sewage enters into the control pond and is subjected to water volume and water quality regulation, and the discharged water flows into the **anaerobic** filter material pond and is further subjected to **purification** treatment through the **anaerobic** filter material pond under the action of the anaerobes adhered to filling materials in the **anaerobic** filter material pond; and the water quality of sewage treated through the treatment unit is transparent, and each technical index of the treated sewage can achieve sewage discharge standard requirements in China.

Classifications:

International (IPC 8-9): C02F3/28 (Advanced/Invention)

CPC: Y02W10/12



Family:

Publication number	Publication date	Application number	Application date
CN203159324 U	20130828	CN201320064464U	20130205

Priority:

CN201320064464U 20130205

Probable Assignee:

ZHANG DONG

Assignee(s): (std):

ZHANG DONG

Inventor(s): (std):

ZHANG DONG

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN203159324 U	20130828	LSGT	+	granted / extensions (spc, cpc, pte)	
CN203159324 U	20130828	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN203159324 U	20160323	LSWD	-EXPY	TERMINATION OF PATENT RIGHT OR UTILITY MODEL	
CN203159324 U	20230205	PEXP		Calculated Patent Term Expiry	

Title: BIOLOGICAL REACTOR APPARATUS FOR BIOLOGICAL DECOMPOSITION OF ORGANIC REFUSE

Abstract: The biological reactor contains in a vessel (11) a bundle (13) of tubes (15). The bundle (13) is formed by a plurality of plastic tubes (15) being of preferably square cross-section. The walls of the plastic tubes serve as growth surfaces for microorganisms. A distributing device (17) feeds the different ducts (18) evenly with liquid organic refuse. The ducts (18) are not completely filled. The liquid level in the reactor is at a certain distance from the top of the tubes (15). Accordingly, if one of the ducts (18) tends to clog, it is filled more than the remaining ducts so that in the clogging duct a hydrostatic pressure is created having the tendency to free the duct. This freeing of the duct is assisted by the control unit 58 which from time to time lowers the liquid level in the reactor and then increases it again.

Classifications:

International (IPC 8-9): B05B1/26 C02F11/02 C02F11/04 C02F3/00 C02F3/04 C02F3/06 C02F3/28 (Advanced/Invention); B05B1/26 C02F11/02 C02F11/04 C02F3/00 C02F3/04 C02F3/06 C02F3/28 (Core/Invention)

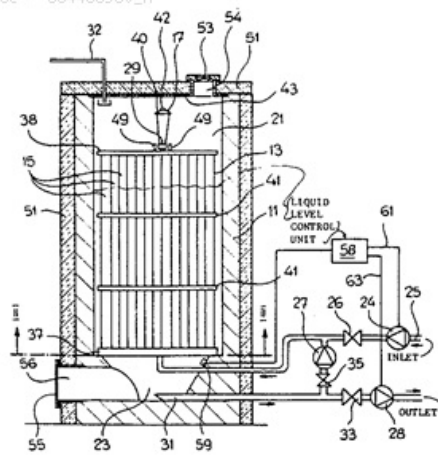
International (IPC 1-7): B05B1/26 C02F11/02 C02F11/04 C02F3/28

CPC: B05B1/265 C02F3/006 C02F3/043 C02F3/06 C02F3/2806 C02F2209/03 Y02E50/343 Y02W10/15

European: B05B1/26A1 C02F3/00R C02F3/04C C02F3/06 C02F3/28C M02F209/03

US: 210/151 210/97

PatBase - US4488960_A

**Family:**

Publication number	Publication date	Application number	Application date
AT17468 E	19860215	AT19830107273T	19830725
BR8304206 A	19840313	BR19830004206	19830805
BRPI8304206 A	19840313	BR19830004206	19830805
DE3361853 D1	19860227	DE19833361853	19830725
EP0100953 A1	19840222	EP19830107273	19830725
EP0100953 B1	19860115	EP19830107273	19830725
US4488960 A	19841218	US19830519693	19830802

Priority:

CH19820004744 19820806 EP19830107273 19830725

Probable Assignee: BUCHS UMWELTTECH UTB

Assignee(s): (std): BUCHS UMWELTTECH UTB

Assignee(s): UTB UMWELTTECHNIK BUCHS AG ; UTB UMWELTTECHNIK BUCHS RHEINSTRASSE 14B CH 9470 BUCHS SWITZERLAND A SWITZERLAND CORP AG

Inventor(s): (std): GOERLICH LOTHAR ; GORLICH LOTHAR

Inventor(s): LOTHAR GORLICH

Designated states: AT BE CH DE FR GB IT LI LU NL SE

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AT17468 E	19860215	LSGT	+	granted / extensions (spc, cpc, pte)	
AT17468 E	19930415	LSLE	-REN	CEASED DUE TO NON-PAYMENT OF THE ANNUAL FEE	
AT17468 E	20030725	PEXP		Calculated Patent Term Expiry	
BR8304206 A	19840313	LSPB	+	published / reissued	
BRPI8304206 A	19840313	LSPB	+	published / reissued	
DE3361853 D1	19870205	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DE3361853 D1	19990909	LSLE	-8339	CEASED/NON-PAYMENT OF THE ANNUAL FEE	
EP0100953 A1	19840222	LSPB	+	published / reissued	
EP0100953 A1	19840222	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 19831212
EP0100953 B1	19860115	LSGT	+	granted / extensions (spc, cpc, pte)	
EP0100953 B1	19861230	LSGT	+26N	NO OPPOSITION FILED	

EP0100953 B1	19910702	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE PAYMENT DATE : 19910702 YEAR OF FEE PAYMENT : 9
EP0100953 B1	19910703	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LU PAYMENT DATE : 19910703 YEAR OF FEE PAYMENT : 9
EP0100953 B1	19910725	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT PAYMENT DATE : 19910725 YEAR OF FEE PAYMENT : 9
EP0100953 B1	19910731	LSFE	ITTA	IT: LAST PAID ANNUAL FEE	REF COUNTRY CODE : EP
EP0100953 B1	19910731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE PAYMENT DATE : 19910731 YEAR OF FEE PAYMENT : 9
EP0100953 B1	19910731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 19910731 YEAR OF FEE PAYMENT : 9
EP0100953 B1	19910731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL PAYMENT DATE : 19910731 YEAR OF FEE PAYMENT : 9
EP0100953 B1	19920116	LSFE	+EPTA	LU: LAST PAID ANNUAL FEE	REF COUNTRY CODE : EP
EP0100953 B1	19920706	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 19920706 YEAR OF FEE PAYMENT : 10
EP0100953 B1	19920725	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT LAPSED DATE : 19920725
EP0100953 B1	19920725	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LU NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 19920725
EP0100953 B1	19920726	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE LAPSED DATE : 19920726
EP0100953 B1	19920731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE LAPSED DATE : 19920731
EP0100953 B1	19930131	LSLE	-BERE	BE: LAPSED	PARTY TYPE : OWNER REF COUNTRY CODE : EP OWNER : UTB UMWELTECHNIK BUCHS A.G. EFFECTIVE DATE : 19920731
EP0100953 B1	19930201	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL LAPSED DATE : 19930201
EP0100953 B1	19930316	LSLE	-NLV4	NL: LAPSED OR ANULLED DUE TO NON-PAYMENT OF THE ANNUAL FEE	REF COUNTRY CODE : EP
EP0100953 B1	19930331	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR LAPSED DATE : 19930331
EP0100953 B1	19930528	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : ST
EP0100953 B1	19930725	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO	COUNTRY OF REF DOCUMENT : GB LAPSED DATE : 19930725

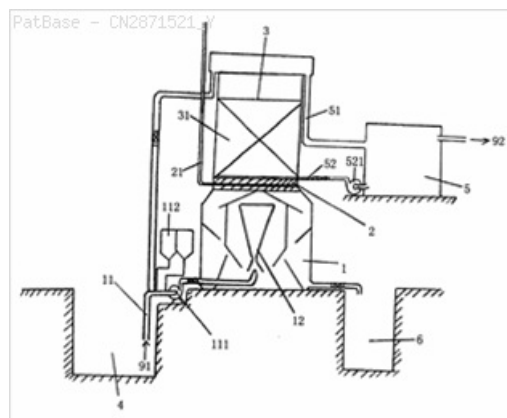
EPO]					
EP0100953 B1	19940323	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON- PAYMENT OF RENEWAL FEE	REF COUNTRY CODE : EP EFFECTIVE DATE : 19930725
EP0100953 B1	19950131	LSLE	-EUG	SE: EUROPEAN PATENT HAS LAPSED	REF COUNTRY CODE : EP TEXT : 83107273.1 EFFECTIVE DATE : 19930204
EP0100953 B1	19970717	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH PAYMENT DATE : 19970717 YEAR OF FEE PAYMENT : 15
EP0100953 B1	19970827	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 19970827 YEAR OF FEE PAYMENT : 15
EP0100953 B1	19980731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON- PAYMENT OF DUE FEES LAPSED DATE : 19980731
EP0100953 B1	19980731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON- PAYMENT OF DUE FEES LAPSED DATE : 19980731
EP0100953 B1	19990315	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : PL
EP0100953 B1	19990501	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON- PAYMENT OF DUE FEES LAPSED DATE : 19990501
EP0100953 B1	20030725	PEXP		Calculated Patent Term Expiry	
US4488960 A	19841218	LSGT	+	granted / extensions (spc, cpc, pte)	
US4488960 A	19830802	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : UTB UMWELTTECHNIK BUCHS AG, RHEINSTRASSE 14B, CH-9 OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:GOERLICH, LOTHAR; REEL/FRAME:004161/0313 EFFECTIVE DATE : 19830715
US4488960 A	19841018	LSGT	PAT1	Patented Case	
US4488960 A	19841018	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US4488960 A	19880321	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US4488960 A	19911226	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US4488960 A	19960425	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US4488960 A	20030802	PEXP		Calculated Patent Term Expiry	

Title: Fast sewage integrated treater

Abstract: This utility model discloses a quick sewage disposer integration including an oxygen absorption reaction chamber, a gas-water mixer, an aerobic biological filter tank. Said oxygen absorption reaction chamber, the gas-water mixer and the aerobic biological filter tank are connected in order, Such disposer is also included a water inlet pipe to said oxygen absorption reaction chamber; a ventilation pipe end is connected with an air pump another end is through to said gas-water mixer. A 2-phase separation device and a biological membrane are set in such oxygen absorption reaction chamber; natural quartz sand filler is laid in aerobic biological filtering tank. Such disposer owns high combination and small bulk and high disposal rate and low running cost. The disposer also has function of activate sewage and biological membrane to implement sludge **purification** and digestion and decomposition of sludge. The hydraulic staying is 3.5h to be up to national I grade drainage standard. Its sludge output is only 1/3-1/4 of traditional active sludge; this disposer is able to cultivate aerobic-facultative **anaerobic**-aerobic culture collection.

Classifications:

International (IPC 8-9): C02F3/30 (Advanced/Invention);
C02F3/30 (Core/Invention)



Family:

Publication number	Publication date	Application number	Application date
CN2871521 Y	20070221	CN200620038934U	20060113

Priority:

CN200620038934U 20060113

Probable Assignee: BILAN ENVIRONMENTAL PROT TECHN

Assignee(s): (std): BILAN ENVIRONMENTAL PROT TECHN

Assignee(s): BILAN ENVIRONMENTAL PROTECTION TECHNOLOGY CO ; BILAN ENVIRONMENTAL PROTECTION TECHNOLOGY CO LTD S

Inventor(s): (std): JIN QIANLIN ZHANG

Inventor(s): QIANLIN ZHANG JIN

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN2871521 Y	20070221	LSGT	+	granted / extensions (spc, cpc, pte)	
CN2871521 Y	20070221	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN2871521 Y	20090415	LSLE	-C19	LAPSE OF PATENT RIGHT DUE TO NON-PAYMENT OF THE ANNUAL FEE	
CN2871521 Y	20160113	PEXP		Calculated Patent Term Expiry	

Title: METHOD AND DEVICE FOR SANITIZING CONTAMINATED GROUND WATER

Abstract: The aim of the invention is to offer a low-cost hydraulic ground water sanitizing method. To this end, the invention provides that a contaminated ground water stream (4) which flows in an aquifer area (2) is raised by a combination consisting of a sealing wall arrangement (5) and of a highly pervious layer (7) without the provision of external energy, and is introduced into a treatment area (11) where it is brought into contact with addition agents and is then returned to the aquifer area (2) via an infiltration area (8).

Classifications:

International (IPC 8-9): B09C1/00 (Advanced/Invention);

C02F1/32 C02F103/06 (Advanced/Non-invention);

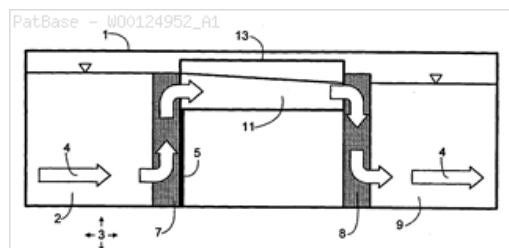
B09C1/00 (Core/Invention);

C02F1/32 (Core/Non-invention)

International (IPC 1-7): B09C1/00 C02F1/32 C02F1/72 C02F103/06 C02F3/34 E02D31/00

CPC: B09C1/002 C02F1/32 C02F2103/06

European: B09C1/00B M02F1/32 M02F103/06



Family:

Publication number	Publication date	Application number	Application date
AT285854 E	20050115	AT20000969421T	20001005
DE19948828 A1	20010531	DE19991048828	19991006
DE19948828 C2	20030626	DE19991048828	19991006
DE50009137 D1	20050203	DE20005009137	20001005
EP1218120 A1	20020703	EP20000969421	20001005
EP1218120 B1	20041229	EP20000969421	20001005
WO0124952 A1	20010412	WO2000EP09740	20001005

Priority:

DE19991048828 19991006 DE20005009137 20001005 WO2000EP09740 20001005

Probable Assignee: UFZ LEIPZIGHALLE GMBH

Assignee(s): (std): SCHIRMER MARIO ; TEUTSCH GEORG ; UFZ LEIPZIGHALLE GMBH ; WEISS HOLGER

Assignee(s): UFZ UMWELTFORSCHUNGSZENTRUM LEIPZIG HALLE GMBH

Inventor(s): (std): WEISS HOLGER ; TEUTSCH GEORG ; WEISS HOLGER ; SCHIRMER MARIO

Designated states: AT BE CA CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE US

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AT285854 E	20050115	LSGT	+	granted / extensions (spc, cpc, pte)	
AT285854 E	20070115	LSLE	-REN	CEASED DUE TO NON-PAYMENT OF THE ANNUAL FEE	
AT285854 E	20201005	PEXP		Calculated Patent Term Expiry	
DE19948828 A1	20010531	LSPB	+	published / reissued	
DE19948828 A1	20010531	LSES	+OP8	REQUEST FOR EXAMINATION AS TO PARAGRAPH 44 PATENT LAW	
DE19948828 C2	20030626	LSGT	+	granted / extensions (spc, cpc, pte)	
DE19948828 C2	20030626	LSGT	+8304	GRANT AFTER EXAMINATION PROCEDURE	
DE19948828 C2	20031224	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DE19948828 C2	20060817	LSLE	-8339	CEASED/NON-PAYMENT OF THE ANNUAL FEE	
DE19948828 C2	20191006	PEXP		Calculated Patent Term Expiry	
DE50009137 D1	20060511	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DE50009137 D1	20100819	LSLE	-8339	CEASED/NON-PAYMENT OF THE ANNUAL FEE	
EP1218120 A1	20020703	LSPB	+	published / reissued	
EP1218120 A1	20020703	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20020408
EP1218120 A1	20031217	LSES	+17Q	FIRST EXAMINATION	EFFECTIVE DATE : 20031029

				REPORT DESPATCHED	
EP1218120 B1	20041229	LSGT	+	granted / extensions (spc, cpc, pte)	
EP1218120 B1	20041229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FI NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20041229
EP1218120 B1	20041229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20041229
EP1218120 B1	20041229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20041229
EP1218120 B1	20041229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20041229
EP1218120 B1	20041229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20041229
EP1218120 B1	20041229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20041229
EP1218120 B1	20041229	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : FG4D TEXT : NOT ENGLISH
EP1218120 B1	20041231	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP
EP1218120 B1	20050126	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : FG4D TEXT : GERMAN
EP1218120 B1	20050329	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DK NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20050329
EP1218120 B1	20050329	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GR NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20050329
EP1218120 B1	20050329	LSLE	-PG25	LAPSED IN A CONTRACTING STATE	COUNTRY OF REF DOCUMENT : SE

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EP1218120 B1	20050409	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20050409
EP1218120 B1	20050601	LSLE	-NLV1	NL: LAPSED OR ANNULLED DUE TO FAILURE TO FULFILL THE REQUIREMENTS OF ART. 29P AND 29M OF THE PATENTS ACT	REF COUNTRY CODE : EP
EP1218120 B1	20050727	LSWD	-GBV	GB: EP PATENT (UK) TREATED AS ALWAYS HAVING BEEN VOID IN ACCORDANCE WITH GB SECTION 77(7)/1977	REF COUNTRY CODE : EP EFFECTIVE DATE : 20041229
EP1218120 B1	20050727	LSWD	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : FD4D
EP1218120 B1	20051005	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20051005
EP1218120 B1	20051005	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CY NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20051005
EP1218120 B1	20051031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20051031
EP1218120 B1	20051031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20051031
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EP1218120 B1	20051031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LU NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20051031
EP1218120 B1	20051031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MC NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20051031
EP1218120 B1	20051221	LSGT	+26N	NO OPPOSITION FILED	EFFECTIVE DATE : 20050930
EP1218120 B1	20060615	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : PL
EP1218120 B1	20071231	LSLE	-BERE	BE: LAPSED	PARTYTYPE : OWNER REF COUNTRY CODE : EP OWNER : *UFZ-UMWELTFORSCHUNGSZENTRUM LEIPZIG-HALLE G.M.B.H

					EFFECTIVE DATE : 20051031
EP1218120 B1	20080102	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PT NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20050529
EP1218120 B1	20090529	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20081222 YEAR OF FEE PAYMENT : 9
EP1218120 B1	20100730	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20100501
EP1218120 B1	20201005	PEXP		Calculated Patent Term Expiry	
WO0124952 A1	20010412	LSPB	+	published / reissued	
WO0124952 A1	20020408	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2000969421 COUNTRY OF REF DOCUMENT : EP
WO0124952 A1	20020703	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 2000969421 COUNTRY OF REF DOCUMENT : EP
WO0124952 A1	20041229	LSGT	+WWG	WIPO INFORMATION: GRANT IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 2000969421 COUNTRY OF REF DOCUMENT : EP

Title: PROCESS FOR THE **ANAEROBIC PURIFICATION** OF WASTE WATERS CONTAINING FURFURAL, BACTERIA USABLE THEREFOR AND THEIR ISOLATION

Abstract: The **anaerobic** treatment or **purification** of furfural-containing waste water and in particular of the vapour condensates of sulphite waste liquor thickening in cellulose pulp fabrication in the absence of sulphate-reducing and methanogenic bacteria can, according to the invention, be simply started and controlled by addition of furfural-degrading bacteria. Such furfural-degrading bacteria are obtained starting with a source of **anaerobic** bacteria such as marsh, swamp or in particular sewage sludge with an intermediate enrichment in continuous liquid culture with supply of a furfural-containing solution by means of a special selection technique in which the bacteria (in different concentrations) are fixed in agar which is covered with a dilute solution of furfural, which acts as the sole carbon source and, on diffusing into the agar, forms a concentration gradient within which a concentration range which is tolerated by the bacteria is present in all cases. In this manner, discus-shaped, beige-coloured individual colonies of furfural-degrading bacteria are obtained which are highly motile, are in the form of slightly S-shaped bent rods with flagella and are morphologically similar to *Desulphovibrio gigas*.

Classifications:

International (IPC 8-9): C02F3/28 C02F3/34 C12N1/20

C12N1/36 (Advanced/Invention);

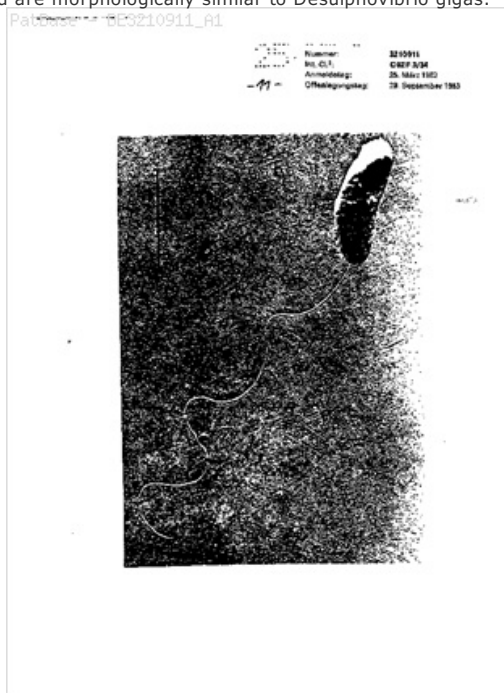
C02F3/28 C02F3/34 C12N1/20 C12N1/36 (Core/Invention)

International (IPC 1-7): C02F3/28 C02F3/34 C12N1/20

CPC: Y02E50/343 C12R1/01 C02F3/28 C02F3/34 C12N1/20

C12N1/36

European: C02F3/28 C02F3/34 C12N1/20 C12N1/36 C12R1/01



Family:

Publication number	Publication date	Application number	Application date
CA1224170 A1	19870714	CA19830424352	19830324
DE3210911 A1	19830929	DE19823210911	19820325
DE3210911 C2	19851031	DE19823210911	19820325
FI79138 B	19890731	FI19830001005	19830324
FI79138 C	19891110	FI19830001005	19830324
FI831005 A	19830926	FI19830001005	19830324
FI831005 A0	19830324	FI19830001005	19830324
FI831005 L	19830926	FI19830001005	19830324
SE459975 B	19890828	SE19830001643	19830324
SE459975 C	19891221	SE19830001643	19830324
SE8301643 A	19830926	SE19830001643D	19830324
SE8301643 A0	19830324	SE19830001643	19830324
SE8301643 L	19830926	SE19830001643	19830324

Priority:

DE19823210911 19820325 DE19823210911 19820325 CA19830424352 19830324

Probable Assignee: KERNFORSCHUNGSANLAGE JUELICH

Assignee(s): (std): KERNFORSCHUNGSANLAGE JYLICH GE ; KERNFORSCHUNGSANLAGE JUELICH

Assignee(s): KERNFORSCHUNGSANLAGE JUELICH GES MIT BESCHRAENKTER HAFTUNG ; KERNFORSCHUNGSANLAGE JUELICH GESELLSCHAFT MIT BESCHRAENKTER HAFTUNG ; KERNFORSCHUNGSANLAGE JUELICH GMBH ; KERNFORSCHUNGSANLAGE JUELICH GMBH 5170 JUELICH DE ; BRUNE GERHARD ; KERNFORSCHUNGSANLAGE JULICH GMBH ; KERNFORSCHUNGSANLAGE JULICH GESELLSCHAFT MIT BESCHRAENKTER HAFTUNG ; KERNFORSCHUNGSANLAGE JYLICH GESELLSCHAFT MIT BESCHRAENKTER HAFTUNG ; SAHM HERMANN ; SCHOBERTH SIEGFRIED M ; KERNFORSCHUNGSANLAGE JULICH GES MIT BESCHRAENKTER HAFTUNG ; KERNFORSCHUNGSANLAGE JYLICH GES MIT BESCHRAENKTER HAFTUNG

Inventor(s): (std): BRUNE G ; BRUNE GERHARD ; BRUNE GERHARD DIPL ING ; SAHM H ; SAHM HERMANN ; SAHM HERMANN PROF DR ; SCHOBERTH SIEGFRIED DR ; SCHOBERTH S M ; SCHOBERTH SIEGFRIED DR ; SCHOBERTH SIEGFRIED M ; SCHOBERTH SIEGFRIED MICHAEL

Inventor(s): SAHM HERMANN PROF DR 5170 JUELICH DE ; SAHM HERMANN PROFDR ; G BRUNE ; H SAHM ; S M SCHOBERTH

Agent(s): SMART AND BIGGAR

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
DE3210911 A1	19830929	LSPB	+	published / reissued	
DE3210911 A1	19830929	LSSES	+OP8	REQUEST FOR EXAMINATION AS TO PARAGRAPH 44 PATENT LAW	
DE3210911 C2	19851031	LSGT	+	granted / extensions (spc, cpc, pte)	
DE3210911 C2	19851031	LSGT	+D2	GRANT AFTER EXAMINATION	
DE3210911 C2	19860430	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DE3210911 C2	19900712	LSAS	8327	CHANGE IN THE PERSON/NAME/ADDRESS OF THE PATENT OWNER	PARTYTYPE : OWNER OWNER : FORSCHUNGSZENTRUM JUELICH GMBH, 5170 JUELICH, DE
DE3210911 C2	20010419	LSLE	-8339	CEASED/NON-PAYMENT OF THE ANNUAL FEE	
FI79138 B	19890731	LSGT	+	granted / extensions (spc, cpc, pte)	
FI79138 C	19891110	LSGT	+	granted / extensions (spc, cpc, pte)	
FI79138 C	20040831	LSLE	-MM	PATENT LAPSED	PARTYTYPE : OWNER OWNER : KERNFORSCHUNGSANLAGE JUELICH GMBH
FI79138 C	20030324	PEXP		Calculated Patent Term Expiry	
FI831005 A	19830926	LSPB	+	published / reissued	
SE459975 B	19890828	LSPB	+	published / reissued	
SE459975 B	19950131	LSFE	+NAL	PATENT IN FORCE	TEXT : 8301643-6
SE459975 B	19951204	LSLE	-NUG	PATENT HAS LAPSED	TEXT : 8301643-6
SE459975 C	19891221	LSGT	+	granted / extensions (spc, cpc, pte)	
SE459975 C	20030324	PEXP		Calculated Patent Term Expiry	
SE8301643 A	19830926	LSPB	+	published / reissued	

Title: CLARIFIER

Abstract: A clarifier for attachment with a water treatment facility, the clarifier having inlet means for water coming in from the treatment facility and outlet means for clarified water, and means for removing bottom sludge from the clarification tank. The clarifier is divided into a supply chamber with said inlet means opening thereto, as well as a clarification chamber with said outlet connection opening thereto. Between the chambers is a separating partition, which extends from a top region of the clarifier downward to terminate at a distance from a bottom part of the clarifier for establishing a gap between the partition's lower edge and the bottom part, said chambers being thereby in flow communication with each other.

Classifications:**International (IPC 8-9):** B01D21/00 B01D21/02 B01D21/24

C02F3/08 C02F3/34 (Advanced/Invention);

B01D (Subclass/Invention)

CPC: B01D21/2422 B01D21/003 B01D21/2444 C02F1/52 C02F3/082

C02F3/10 C02F3/301 C02F3/302 C02F2001/007 C02F2101/105

C02F2103/002 C02F2103/005 C02F2103/06 C02F2103/10

C02F2103/18 C02F2103/20 C02F2103/30 C02F2103/42 C02F2103/44

Y02W10/15

European: B01D21/00M B01D21/24G C02F3/08B M02F1/00S

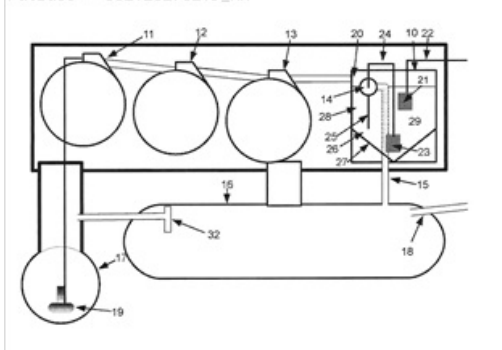
M02F1/52 M02F101/10C M02F103/00C M02F103/00E M02F103/06

M02F103/10 M02F103/18 M02F103/20 M02F103/30 M02F103/42

M02F103/44 M02F3/10 M02F3/30B M02F3/30D

US: 210/151 210/521

PatBase - US2013175209_AH

**Family:**

Publication number	Publication date	Application number	Application date
AR082627 AA	20121219	AR2011P102916	20110811
AU2011288319 AA	20120216	AU20110288319	20110810
BR112013001121 A2	20160524	BR20131101121	20110810
CA2797887 AA	20120216	CA20112797887	20110810
CN103108684 A	20130515	CN201180026438	20110810
EP2603300 A2	20130619	EP20110770835	20110810
FI123453 B	20130515	FI20100005843	20100811
FI20105843 A	20120212	FI20100005843	20100811
FI20105843 A0	20100811	FI20100005843	20100811
JP2013535327 T2	20130912	JP20130522275T	20110810
RU2013109809 A	20140920	RU20130109809	20110810
US2013175209 AA	20130711	US20110816286	20110810
WO12020168 A2	20120216	WO2011FI50704	20110810
WO12020168 A3	20120405	WO2011FI50704	20110810

Priority:

FI20100005843 20100811 WO2011FI50704 20110810

Probable Assignee: CLEWER OY**Assignee(s):** (std): CLEWER OY ; ROINE JUHO ; ZAITSEV GENNADI**Inventor(s):** (std): ZAITSEV GENNADI ; ROINE JUHO**Inventor(s):** JUHO ROINE ; GENNADI ZAITSEV**Agent(s):** CALLINANS; FISHER ADAMS KELLY CALLINANS; SPRUSON AND FERGUSON; GOWLING LAFLEUR HENDERSON LLP; LEITZINGER OY

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 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 QA 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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AR082627 AA	20121219	LSPB	+	published / reissued	
AR082627 AA	20150105	LSWD	-FA	ABANDONMENT OR WITHDRAWAL	
AU2011288319 AA	20120216	LSPB	+	published / reissued	
AU2011288319 AA	20150813	LSLE	-MK1	APPLICATION LAPSED SECTION 142(2)(A) - NO REQUEST FOR EXAMINATION IN RELEVANT PERIOD	
BR112013001121 A2	20160614	LSRV	-B11A	DISMISSAL ACC. ART.33 OF IPL - EXAMINATION NOT REQUESTED WITHIN 36 MONTHS OF FILING	

BR112013001121 A2	20170411	LSRV	-B11Y	DEFINITIVE DISMISSAL ACC. ARTICLE 33 OF IPL - EXTENSION OF TIME LIMIT FOR REQUEST OF EXAMINATION EXPIRED	
CA2797887 AA	20120216	LSPB	+	published / reissued	
CA2797887 AA	20121030	LSES	+EEER	EXAMINATION REQUEST	
CA2797887 AA	20121231	LSES	+EEER	EXAMINATION REQUEST	EFFECTIVE DATE : 20121030
CA2797887 AA	20151006	LSLE	-FZDE	DEAD	EFFECTIVE DATE : 20150811
CN103108684 A	20130515	LSPB	+	published / reissued	
CN103108684 A	20130515	LSPB	+C06	PUBLICATION	
CN103108684 A	20150325	LSDW	-C02	DEEMED WITHDRAWAL OF PATENT APPLICATION AFTER PUBLICATION (PATENT LAW 2001)	
EP2603300 A2	20130619	LSPB	+	published / reissued	
EP2603300 A2	20130619	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20130311
EP2603300 A2	20130911	LSWD	-18W	APPLICATION WITHDRAWN	EFFECTIVE DATE : 20130805
FI123453 B	20130515	LSGT	+	granted / extensions (spc, cpc, pte)	
FI123453 B	20130515	LSGT	+FG	PATENT GRANTED	REF DOCUMENT NUMBER : 123453 COUNTRY OF REF DOCUMENT : FI KIND CODE OF REF DOCUMENT : B DESIGNATED STATE(S) :
FI123453 B	20300811	PEXP		Calculated Patent Term Expiry	
FI20105843 A	20120212	LSPB	+	published / reissued	
JP2013535327 T2	20130827	LSWD	-A761	WRITTEN WITHDRAWAL OF APPLICATION	TEXT : JAPANESE INTERMEDIATE CODE: A761 EFFECTIVE DATE : 20130826
JP2013535327 T2	20130912	LSRE	A521	WRITTEN AMENDMENT	TEXT : JAPANESE INTERMEDIATE CODE: A821 EFFECTIVE DATE : 20130826
RU2013109809 A	20140920	LSPB	+	published / reissued	
RU2013109809 A	20150410	LSWD	-FA94	ACKNOWLEDGEMENT OF APPLICATION WITHDRAWN (NON- PAYMENT OF FEES)	EFFECTIVE DATE : 20150210
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US2013175209 AA	20130422	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CLEWER OY, FINLAND OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:ROINE, JUHO; ZAITSEV, GENNADI; SIGNING DATES FROM 20130102 TO 20130117; REEL/FRAME:030260/0028
US2013175209 AA	20150909	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	
WO12020168 A2	20120216	LSPB	+	published / reissued	
WO12020168 A2	20110810	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 201180026438.1 COUNTRY OF REF DOCUMENT : CN

WO12020168 A3	20121030	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2797887 COUNTRY OF REF DOCUMENT : CA
WO12020168 A3	20121126	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2011770835 COUNTRY OF REF DOCUMENT : EP
WO12020168 A3	20130201	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2013522275 COUNTRY OF REF DOCUMENT : JP KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO12020168 A3	20130211	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
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WO12020168 A3	20160524	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 112013001121 COUNTRY OF REF DOCUMENT : BR KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) : EFFECTIVE DATE : 20130116