

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

CLASSIFICATION ORDER 1890

DECEMBER 1, 2009

PROJECT C-6927

**The following classification changes will be effected by this order:**

	<u>Class</u>	<u>Subclass</u>	<u>Art Unit</u>	<u>Ex'r Search Room</u>
<b>Abolished:</b>	210	748	1797	RND0000B15
<b>Established:</b>	210	748.01-748.09, 748.1, 748.11-748.19, 748.2	1797	RND0000B15

**The following classes are also impacted by this order:**

95, 96, 203, 204, 205, 241, 250, 392, 422, 604

**This order includes the following:**

- A. CLASSIFICATION MANUAL CHANGES
- B. LISTING OF PRINCIPAL SOURCE OF ESTABLISHED AND DISPOSITION OF ABOLISHED SUBCLASSES
- C. CHANGES TO THE USPC-TO-IPC CONCORDANCE
- D. DEFINITION CHANGES AND NEW OR ADDITIONAL DEFINITIONS

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600	<b>PROCESSES</b>	629	...And internally circulating the liquid
601	.Treatment by living organism	630	...And anaerobic treatment
602	..Including plant or animal of higher order	631	..And additional treating agent other than mere mechanical manipulation (e.g., chemical, sorption, etc.)
603	..Including collecting or storing gas (e.g., fuel, carbon monoxide, etc.)	632	.Treating by enzyme
604	...And reusing oxidant	633	.Extracting utilizing solid solute
605	..Anaerobically, with subsequently aerobically treating liquid	634	.Liquid/liquid solvent or colloidal extraction or diffusing or passing through septum selective as to material of a component of liquid; such diffusing or passing being effected by other than only an ion exchange or sorption process
606	..Adding enzyme or releasing same by treating microorganism	635	..Liquid/liquid or gel type (i.e., jellylike) chromatography
607	..Dividing, treating, and recombining liquid	636	..Including cleaning or sterilizing of apparatus
608	..Regulating floating constituent	637	..Including regulating pressure to control constituent gradient at membrane or to prevent rupture of membrane
609	..Including dewatering sludge	638	..Including ion exchange or other chemical reaction
610	..Including adding ancillary growth medium for microorganism	639	..Including prior use of additive (e.g., changing pH, etc.)
611	...For or with specific microorganism	640	..Passing through membrane in vapor phase
612	..And regulating temperature during biological step	641	..Utilizing plural diverse membranes
613	...Digesting sludge	642	..Extracting water from brine utilizing liquid/liquid solvent or colloidal extraction
614	..Controlling process in response to stream constituent or reactant concentration	643	..Utilizing liquid membrane (e.g., emulsion) in liquid/liquid solvent or colloidal extraction
615	..Utilizing contact surfaces supporting microorganism (e.g., trickling filter, etc.)	644	..Diffusing or passing through septum selective as to material of a component in liquid/liquid solvent or colloidal extraction
616	...Particulate media	645	...Biological fluid (e.g., blood, urine, etc.)
617	....In bed form	646	...Hemodialysis
618	.....And rehabilitating or regenerating same	647	....Maintaining critical concentration(s)
619	..Rotating contactor		
620	..Aerobic treatment		
621	...Recirculating to prior step		
622	....Of separated liquid		
623	....Of sludge or separated solid		
624	.....And returning to or withdrawing from diverse treating zones		
625	.....Treating outside mainstream		
626	.....To mainstream oxygenation (e.g., activated sludge, etc.)		
627	.....Utilizing specific oxidant, other than air alone (e.g., oxygen-enriched air, ozone, peroxide, etc.)		
628	.....Utilizing mechanical aeration means		

648	...Including regenerating or rehabilitating the extracting liquid in liquid/liquid solvent or colloidal extraction	675	...Rehabilitating or regenerating in diverse zone or chamber
649	..Diffusing or passing through septum selective as to material of a component of liquid	676	...Continuous cyclic process
650	...Filtering through membrane (e.g., ultrafiltration)	677	...Using conserved or recirculated fluid
651	...Removing specified material	678	...Including liquid flow direction change
652	...Hyperfiltration (e.g., reverse osmosis, etc.)	679	..Utilizing exchange or sorbent material associated with inert material
653	....Utilizing specified membrane material	680	...Including oil sorbent
654	.....Synthetic resin	681	..Removing ions
655	.....Cellulosic	682	...Radioactive
656	.Chromatography	683	...Anions
657	..Utilizing rotating column	684	....Metal complexed (e.g., chromate, ferricyanide, chlorplatinatate, etc.)
658	..Utilizing paper or thin layer plate	685	...Including cation
659	..Including liquid flow diversion	686	....Utilizing mixed bed or amphoteric material
660	.Ion exchange or selective sorption	687	..Calcium or magnesium (e.g., hardness, water softening, etc.)
661	..By passing through suspended bed	688	...Heavy metal
662	..And liquid testing or volume measuring	689	..Sorbing water from diverse liquid
663	..Including diverse separating or treating of liquid	690	..Sorbing organic constituent
664	..By distilling or degassing	691	...From aqueous material
665	..By making an insoluble substance or accreting suspended constituents	692	....Utilizing synthetic resin
666	....Utilizing organic agent	693	.....Oil removed
667	....Utilizing aluminum, calcium, or iron containing agent	694	....Utilizing activated carbon
668	..By chemically modifying or inhibiting dispersed constituent	695	.Using magnetic force
669	...Prior to ion exchange or sorption	696	.Preventing, decreasing, or delaying precipitation, coagulation or flocculation
670	..Including rehabilitating or regenerating exchange material or sorbent	697	..Utilizing inorganic phosphorus agent
671	...Of oil sorbent material	698	..Utilizing organic agent
672	...Fractional, selective, or partial type	699	...Phosphorus containing
673	...Utilizing gas, water, or chemical oxidizing or reducing agent	700	....Nitrogen containing
674	...Utilizing organic regenerant	701	...Acrylic polymer
		702	.Making an insoluble substance or accreting suspended constituents
		703	..Effecting flotation
		704	...Including chemical addition (with or without bouyancy gas)
		705	...Chemically specified precipitant, coagulant, or flocculant
		706	....And significant characteristic of the bouyancy gas, other than mere addition of same

707	.....Generating gas in situ	746	..Electrical property sensing
708	..Including emulsion breaking	747	..Including geographic feature (e.g., drainage ditch, septic, pond)
709	..Controlling process in response to stream condition	748.01	..Utilizing electrical or wave energy directly applied to liquid or material being treated
710	..Treating the insoluble substance	748.02	..Sound waves
711	...For recovery of a treating agent	748.03	...Destroying living organisms
712	..Including recycling	748.04	...Destroying/degradation of chemical contaminant
713	...Of separated solids	748.05	...Separating particles
714	..Seeding	748.06	..Laser
715	..Utilizing sludge or floc blanket	748.07	..Microwaves
716	..Including step of manufacturing inorganic treating agent	748.08	..Infrared radiation
717	...In situ	748.09	..Visible light
718	..Including degassing	748.1	..Ultraviolet radiation
719	..Including chemical reduction	748.11	...Destroying living organisms
720	...Of chromium material	748.12	....Including generation of treatment chemical
721	..Including oxidation	748.13	...Destroying/degradation of chemical contaminant
722	...Of iron or manganese material	748.14	....Photocatalytic
723	..Utilizing precipitant, floculant, or coagulant, each with accelerator or with each other or plural precipitants, floculants, or coagulants	748.15	....Utilizing hydrogen peroxide, ozone, or oxygen
724	...Regulating pH	748.16	..Including chemical treatment
725	....Utilizing organic precipitant	748.17	...Generating treatment chemical by electrical energy
726	...Sequential introduction	748.18	....Metal ion or metal
727	....Including organic agent	748.19	....Ozone
728	...Including organic agent	748.2	....Chlorine or chlorine compound
729	..Utilizing organic precipitant	749	..Chemical treatment
730	...From natural source or chemical modification thereof	750	..Including degassing
731	....Starch	752	..Plural spaced feedings
732	...Synthetic polymer	753	..Utilizing halogen or halogen containing material
733	....Acrylic	754	...Chlorine or bromine containing
734	....Nitrogen containing (e.g., amine, azo, etc.)	755	....Organic
735	....Nitrogen containing (e.g., amine, azo, etc.)	756	....Hypochlorite
736	....Derived from alkyl halide or epihalophydrin reactant	757	..By chemical reduction
737	..Including temperature change	758	..By oxidation
738	..Including agitation	759	...Utilizing peroxy compound (e.g., hydrogen peroxide, peracid, etc.)
739	..Including controlling process in response to a sensed condition	760	...Utilizing ozone
740	..Density or specific gravity sensing	761	...Liquid phase high temperature and pressure (e.g., "wet air", etc.)
741	..Pressure sensing	762	....Catalytic
742	..Temperature sensing	763	...Catalytic
743	..pH sensing	764	..Destroying microorganisms
744	..Level sensing	765	..Including liquid recirculation
745	..Turbidity or optically sensing	766	..Including temperature change
		767	..Separating

768	..Including treating separated solids	804	...And additional diverse separation
769	...Destroying cake or solid component	805	..And recirculating liquid
770	...Including drying (e.g., by squeezing or heating, etc.)	806	..Plural separating
771	....By gas contact	807	..Utilizing particulate bed
772	...Washing with a fluid other than the prefilter	808	..Including specified pressure change
773	..Including preliminary conversion to liquid state	85	<b>WITH ALARM, INDICATOR, REGISTER, RECORDER, SIGNAL OR INSPECTION MEANS</b>
774	..Including temperature change	86	.Material level or thickness responsive
775	...Thermal diffusion	87	.Responsive to fluid flow
776	..Skimming	88	..Meter-controlled cyclic systems
777	..Including precoating filter medium with filter aid	89	...With time control
778	...With or by addition to prefilter	90	.Fluid pressure responsive
779	..Discharging residue to prefilter	91	.Position or extent of motion
780	..Including movement of filter during filtration	92	.Test valve
781	...Centrifugally extracting	93	.In effluent conduit
782	....Blood	94	.Transparent
783	...Rotating belt	95	..Sight glass
784	...Rotating drum	96.1	<b>CONSTITUENT MIXTURE VARIATION RESPONSIVE</b>
785	...Cleaning filter utilizing wave energy (e.g., vibrating, pulsating, etc.)	96.2	.With membrane
786	...Of particulate bed (e.g., fluidized or moving bed, etc.)	97	<b>FLOW, FLUID PRESSURE OR MATERIAL LEVEL, RESPONSIVE</b>
787	..Cyclonic, or centrifugal (e.g., whirling or helical motion or by vortex, etc.)	98	.Fluid current controlled cyclic system
788	...Introducing liquid tangentially	99	.Prefilter diverting to drain by prefilter accumulation
789	...Isolating layer	100	.Flow cut-off requiring reset
790	..Dividing and recombining	101	.Proportionate feed means
791	..Rehabilitating or regenerating filter medium	102	.Programming plural units
792	...Particulate bed	103	.Diverse sensing means
793	....Reverse flow	104	..Responsive to material level
794	....Including addition of diverse fluid	105	..With control for auxiliary liquid inlet
795	.....Expanded bed	106	.Filter cleaning
796	...Including mechanical agitation	107	..Rotary movement of filter or mechanical cleaner
797	...By diverse fluid	108	..Backwash or blowback
798	...Reverse flow	109	.Discharge of treated material
799	..Filtering immiscible liquids	110	..With separator inlet control
800	..Utilizing gravitational force	111	..Responsive to prefilter accumulation or filter clogging
801	...Including change of mainstream flow direction	112	..Heavier constituent
802	....Utilizing parallel separation passages	113	...By weight of solids
803	...Including specified feature of settled solids removal	114	...By treated liquid accumulation
		115	...With lighter constituent outlet control
		116	..Permitted by filtrate accumulation
		117	..Check valve controlled

118	...Non-closing, e.g., sand valve	156	..Fluid stream or residue operated
119	...Float type	157	...Revolving cylindrical strainer
120	.Vent control	158	..With cleaner for movable strainer
121	.Float	159	..With cleaner and means to remove residue therefrom
122	..Controls movable separator	160	..Endless belt strainer
123	..Controls valve	161	..Revolving strainer
124	...Controls flow between two separators	162	..Fixed strainer
125	...Separator between float and valve	163	.Grated inlet surface drain
126	...Float in separate rehabilitating fluid tank	164	..Flat grating at surface level
127	...Additional fluid inlet control	165	...With subsurface weep means
128	...Float in receptacle other than that of separator	166	..Concentric guard ring or rib
129	...In flow between inlet and separator	167.01	.Closed circulating system
130	.Fluid pressure responsive bypass	167.02	..For lubrication system
131	..By movement of separation medium	167.03	...Having magnetic treating means
132	..With additional separation or treating means	167.04	...Plural separators
133	..In inlet and outlet closure header	167.05	...Having bypass line
134	.Plural elements controlled	167.06	...With heating or cooling means
135	..Including manually controlled element	167.07	...Evaporator
136	.Check valve	167.08	...Separator for transmission system
137	.Maintaining stream pressure or flow	167.09	...With separator cleaning means
138	<b>WITH TIME CONTROL</b>	167.1	..For swimming pool or spa (e.g., skimmer, etc.)
139	.Of additional fluid	167.11	...With means to add treating material
140	..Preparation for treating operation	167.12	...Separator external to swimming pool or spa
141	<b>WITH PROGRAM ACTUATOR</b>	167.13	...Particulate solid filter
142	.Plural treating units or sections sequentially controlled	167.14	...With separator cleaning means (e.g., backwash means, etc.)
143	<b>AUTOMATIC CONTROL</b>	167.15	...Separator for use on swimming pool or spa bottom and separator for use at water surface
144	.Responsive to vibration or unbalance	167.16	...Separator for use on swimming pool or spa bottom
145	.Responsive to rotation	167.17	...Debris collecting bag
146	..Controlled cover latch	167.18	...Skimmer arm at skimmer opening at water surface
147	..Controlled discharge means	167.19	...Mesh or screen filter at or near water surface
148	.Container movement operated	167.2	...Having floating means
149	.Thermal	167.21	..For aquarium
150	<b>WITH GAS-LIQUID SURFACE CONTACT MEANS</b>	167.22	...Separator using living organism
151	.With separator	167.23	...Separator or part thereof associated with bottom of aquarium (e.g., means positioned under gravel, etc.)
153	<b>STRUCTURAL INSTALLATION</b>	167.24	...Having solid sorbent
154	.Flume stream type	167.25	...Particulate filter or particulate sorbent
155	..Plural or diverse screens		

167.26	...Separator with aerator	186	..External of casing
167.27	..Separator mounted on top edge of aquarium wall	187	.Within gravitational separator
167.28	..For cooking oil system	188	<b>WITH GAS SEPARATOR</b>
167.29	..Having magnetic treating means	189	<b>PLURAL CHAMBERS WITH MOVEMENT OF GRANULES THEREBETWEEN</b>
167.3	..With means to add treating material	190	<b>WITH EXTERNAL SUPPLY MEANS FOR REGENERATING MEDIUM, E.G., WATER SOFTENING SYSTEM</b>
167.31	..Plural separators		.With pump, injector or siphon
167.32	..With heating or cooling means	191	<b>WITH PRELIMINARY CHEMICAL MANUFACTURE</b>
170.01	.Geographic	192	<b>WITH PRECOAT ADDING OR APPLYING MEANS</b>
170.02	..For fishpond		<b>RECIRCULATION</b>
170.03	..For stormwater treatment (e.g., rainwater runoff, stormsewer treatment, etc.)	193	.Serially connected distinct treating or storage units
170.04	..For excavating means	194	..With semipermeable membrane, e.g., dialyzer, etc.
170.05	..Floating means	195.1	..With sediment recycle means directly to main stream
170.06	..Separator with aerator	195.2	...Means is baffle slot
170.07	..Groundwater	195.3	.Of filtrate
170.08	..Septic tank or waste liquid treatment system	195.4	.From bottom of separator
170.09	..Body of freshwater (e.g., pond, lake, reservoir, etc.)	196	<b>WITH MEANS TO ADD TREATING MATERIAL</b>
170.1	..Surface flowing freshwater (e.g., stream, river, ditch, canal, etc.)	197	.Chromatography
170.11	..Body of saltwater (e.g., sea, ocean, etc.)	198.1	..Thin layer, e.g., plate, etc.
171	.Machinery	198.2	.Spaced along flow path
172.1	..Separator ancillary to storage tank	198.3	.Plural distinct separators
172.2	..Submerged separator	199	..Serially connected
172.3	...On pump suction intake	200	...Diverse type
172.4	...Filter supported by frame (e.g., bag shaped filter in fuel tank for engine, etc.)	201	..Filters
172.5	...Having tethering means	202	...Sectional chamber press type
172.6	..In tank inlet	203	.With distinct reactor tank, trough or compartment
173	<b>COMMUNITING</b>	204	..Chemical holder in series with separator
174	.Cylindrical strainer	205	..Within gravitational separator
175	<b>WITH HEATER OR HEAT EXCHANGER</b>	206	..With mechanical agitator
176	.Thermal diffusion	207	.Directly applied to separator
177	.With treating fluid addition	208	..To interior of moving filter, e.g., drum
178	..With mechanical agitator or movable separator	209	...Through separator supporting rotary shaft
179	.With mechanical agitator or movable separator	210	...With stationary casing closure feature
180	.Vapor or gas removal	211	...With coaxial rotary impeller or distributor
181	.Flow line connected in series with distinct separator	212	...With stationary mount for movable distributor
182	.Diverse separators	213	...With effluent dividing means
183	..Common casing coaxial with heater	214	..Moving filter medium
184	.For filter	215	...Drum
185	..Imbedded or between filter media	216	..Gas removed from closed tank
		217	
		218	

219	..With mechanical agitator	252	<b>SERIALLY CONNECTED DISTINCT</b>
220	..Submerged fluid inlet		<b>TREATING WITH OR WITHOUT</b>
221.1	..With outlet at surface, e.g., froth flotation, etc.	253	<b>STORAGE UNITS</b>
221.2	...And gas injecting means other than by mechanical agitation	254	.Parallel
222	<b>MAGNETIC</b>	255	.With by-pass
223	.With additional separator	256	.Cascade
224	<b>SECTIONAL CHAMBER PRESS TYPE</b>	257.1	.One unit inside another
225	.With residue removal or liquid agitation	257.2	.With storage unit
226	.With porous filler	258	..Having membrane
227	.Medium clamped in joint	259	.With pump, gas pressure or vacuum source
228	..With spacing frame	260	.Diverse
229	..Imperforate base recess in plate	261	..Including multiple operation unit
230	.With repair or assembling means	262	..One unit supports another
231	.Plates or frames	263	..On different levels
232	<b>WITH REPAIR OR ASSEMBLING MEANS</b>		<b>PARTICULATE MATERIAL TYPE</b>
233	.Piercing or closure knock out means	264	<b>SEPARATOR, E.G., ION EXCHANGE</b>
234	.Removable treatment part with normally disabled flow controller	265	<b>OR SAND BED</b>
235	.Placement of container opens flow controller	266	.Selective units or compartments
236	.Sliding or rolling on guide means	267	.With gravitational separator
237	.Hoist or handle means	268	.With spaced non-particulate separating means
238	..Hand manipulable	269	.Trunnion mounted casing
239	<b>CONVERTIBLE</b>	270	.Gravity flow of particles type
240	.Filter having selectively usable flow connector means	271	.With rehabilitation means
241	<b>WITH MOVABLE SUPPORT</b>	272	..Movable means for particle pickup and redeposit
242.1	.Float	273	..Surface traversing type
242.2	..With aerating means	274	...Rotating on stationary axis
242.3	..With oil water skimmer	275	...Moving fluid distributor
242.4	..With oil water sorption means	276	..Including means to apply gas to bed
243	<b>ELECTRICAL INSULATING OR</b>	277	..Backwash or blowback means
	<b>ELECTRICITY DISCHARGING</b>	278	...With mechanical agitator or residue remover
244	<b>PORTABLE RECEPTACLE WITH HOOD OR</b>	279	...Flow controller external of closed casing
	<b>CLOSURE</b>	280	...Multi-way valve unit
245	.Attached variable flow controller	281	...With embedded fluid distributor
246	.Limited opening cover	282	..With agitator
247	<b>FILTRATE SPLASH PLATE AND/OR</b>	283	..With access opening to normally closed casing
	<b>DEFLECTOR</b>	284	.Removable cartridge or hand- manipulated container
248	<b>WITH DRIP, OVERFLOW OR CONTENT</b>	285	.Pervious divider between and contacting beds
	<b>DRAINING FEATURE</b>	286	.Spaced beds
249	<b>BRACKET OR LEG SUPPORT FOR STATIC</b>	287	.Embedded baffle
	<b>SEPARATOR ASSEMBLY</b>	288	..Vertical
250	.Leg		.Within flow line or flow line connected closed casing
251	<b>COMBINED</b>		..Conduit through bed, inlet and outlet at same end of casing

289	..With particular liquid receiving means or foraminous bed retainer	321.63	.Rotating mechanical agitator adjacent membrane
290	..With multi-layer beds	321.64	.Plural diverse structured membranes within a single casing
291	.Particular liquid receiving means or foraminous bed retainer	321.65	.Permeated liquid quantity measurement or control
292	..Hood or top protector type	321.66	.Energy recovery from treated liquid
293	..Floor type, e.g., false bottom	321.67	.Membrane movement during purification
294	<b>DIVERSE DISTINCT SEPARATORS</b>	321.68	..Nontranslatory rotary
295	..Including a filter	321.69	.With membrane cleaning or sterilizing means (other than by filter movement or rotating agitator)
296	..Including liquid as a separating medium	321.7	..Solid cleaning material (e.g., balls)
297	..Moving filter medium	321.71	.Dialyzer with dialysate proportioning means
298	..With mechanical residue or sediment mover	321.72	.Each section having inlet(s) and outlet(s)
299	..Including constituent trapping feature	321.73	..Noncoiled nonannular cross section tube
300	...Alternate filters and traps in series	321.74	..Coiled membrane
301	....Plural traps	321.75	..Planar membrane
302	...Flow-line valve upstream of separator	321.76	...Spiral flow
303	...Cut-off sediment trap	321.77	..Pleated membrane
304	...Tangential flow, spiral or convolute baffle	321.78	..Cylindrical membrane
305	...Baffle preceding or within sediment trap	321.79	...Plural cylindrical membranes all connected for parallel flow
306	....Deflecting prefilter from filter medium	321.8	...All cylindrical membranes are parallel
307	...Downstream of filter medium	321.81	....With embedded baffle
308	...Directly communicating with tubular filter interior	321.82	.Noncoiled nonannular cross section tube
309	....Attached to filter element	321.83	.Coiled membrane
310	...Lateral trap	321.84	.Planar membrane
311	..Downflow inlet, upflow through filter medium	321.85	..Spiral flow
312	...Sediment discharge means	321.86	.Pleated membrane
313	....Valve controlled	321.87	.Cylindrical membrane
314	..Spaced filters	321.88	..Plural cylindrical membranes all connected for parallel flow
315	..One within another	321.89	...All cylindrical membranes are parallel
316	..One adjacent inlet or outlet conduit	321.9	....With embedded baffle
317	...Including non-self-supporting medium	322	<b>PLURAL DISTINCT SEPARATORS</b>
318	...Incompatible shapes	323.1	.Filters
319	.With agitator	323.2	..Tubular
320	.With baffle perpendicular to flow direction	324	..Movable separating elements
321.6	<b>CASING DIVIDED BY MEMBRANE INTO SECTIONS HAVING INLET(S) AND/OR OUTLET(S)</b>	325	...Planetary
321.61	.Membrane secured with adhesive of specified composition	326	...Drum type on parallel axis
321.62	.Antithrombogenic membrane		

327	...Plural cleaners and plural movable elements	361	...With individual article container or support
328	...Pivotally mounted sections	362	...Container or support reversible
329	...Relatively movable	363	...With adjustable rotation stabilizer
330	...Connected for group operation	364	...Casing, shaft and filter unit gyratorily mounted
331	...Spaced filter wall type, e.g., multiple hollow leaves	365	...Shaft and filter unit gyratorily mounted
332	..With residue removal or liquid agitation	366	...Gyratory mounting above filter
333.01	...Backwash or blowback	367	...Filter gyratorily mounted on shaft
333.1	...Sequential backwash	368	...With rotation brake
334	...Alternating filter and residue remover	369	...Discharging residue
335	..In series for prefiltration flow	370	...Secondary motion of filter medium
336	...Tortuous path	371	...With variable flow controller
337	...Nested units	372	...By residue engaging means
338	...Concentric filter elements	373	.....Fixed
339	...Internal flange supporting filter element	374	.....Rotatable
340	..Parallel filters with flow controller	375	.....Pivoted
341	...Individually controlled for removal with common receiver	376	.....Axially reciprocable
342	..One element within another	377	...Internal work distributor
343	..Alternating oppositely opening liquid distributors	378	...Including filtrate receiving means having plural filtrate outlets
344	..Abutted alternating medium and pan type receiver	379	...Including filtrate receiving trough adjacent top discharge
345	..Radial or radially connected to central header	380.1	...Rotating element construction
346	..Spaced wall-type filters	380.2	...Laundry
347	...Central header	380.3	...Horizontal axis
348	<b>FILTER</b>	381	...Inwardly extending partitions
349	..Pulsation dampener or gas trapping	382	...Top filtrate discharge
350	..With movable means to compress medium	383	..Separate agitator
351	..Actuating means external of closed casing	384	..Vibrator and unidirectional motion filter medium
352	..Internal spring	385	..With plural motion
353	..Free cleaning means, e.g., loose abrading particles	386	..Rolls or confining members contacting residue
354	..Medium, cleaner or agitator moved by fluid	387	..Unrollable
355	..Cleaner	388	..Vibrating or longitudinally reciprocating
356	..Medium flexed	389	...Longitudinally moving prefiltration type
357	..Relatively movable members interleaved for cleaning	390	..Mounted on movable valve element
358	..Imperforate drum, medium on arc, chord or end	391	..With cleaning means
359	..Movable medium	392	...Fixed position or attached valve blocking means
360.1	..Centrifugal extractor	393	...Backwash or blowback and additional cleaner
360.2	..With inward flow of feed component	394	...Discharging inside, e.g., internal-type drum

395	...With filter-driven valve means	429	..Filter coaxial with valve seat or valve stem
396	...Solid cleaner, e.g., scraper		
397	...With plural outlets from filter casing	430	...Filter surrounds valve
398	..Within sealed enclosure	431	...Filter fixed to valve seat, opposed to valve head
399	..Movable casing	432	..Filter in valve body recess
400	..Belt type	433.1	..Divided filtered, and unfiltered liquid passages
401	...Superimposed on additional moving support	434	..Recombining
402	..Drum type	435	..Within flow line or flow line connected close casing
403	...Internal feed		
404	...Annular segmented compartment	436	..Vented
405	..Movable prefilter distributor	437	..Central internal liquid receiver, e.g., tube
406	..Vacuumized filtrate receiver		
407	..With residue removing means or agitation of liquid	438	...Imperforate central liquid tube
408	..Diverse, e.g., combined agitators, scrapers, aeration blowback	439	...Axial flow through filter element
409	..Fluid cleaning	440	...Inlet and outlet at same end
410	...Air pump type	441	...Attached to casing
411	...Backwash or blowback	442	...Head and base connected
412	...Liquid pulsator	443	..Inlet and outlet at same end
413	..Fixed filter medium and movable stirrer or cleaner	444	...Filter suspended from head
414	...With plural outlets from filter casing	445	..Clamped in casing joint
415	...Nontranslatory rotary	446	..Axially aligned inlet and outlet
416.1	..With pump, gas pressure, or suction source	447	...Laterally removable
416.2	..For aquarium or swimming pool	448	...Single open-end-type filter element
416.3	..For drinking water	449	...Pipe end attached closed casing, e.g., faucet
416.4	..For fuel system	450	..Gasket within casing or spaced removable end members
416.5	..For lubricating or oil treating system	451	..Internal fixed shoulder supporting filter element
417	..Alternating oppositely opening liquid distributors	452	...Single open-end-type filter element
418	..With flow controller for material being treated	453	..Filter element clamped between closure and end wall
419	..Attached to or within portable prefilter receiver	454	..Filter element attached to closure
420	..Selective directive flow relative to filter	455	..Receptacle and modified spacing surface or support for filter medium
421	...Pivoted prefilter deflector		
422	...Plural outlets from filter casing	456	..Prefilter flow distributor or diverter
423	...Attached unitary plural passage header	457	..With central pervious tubular receiver
424	...Multi-way valve	458	..Plural concentric receivers
425	...Backwash	459	..Pipe or plate attached type
426	...Encased	460	..Attached to open end of pipe
427	...Backwash	461	...Spaced wall-type element
428	..Combining or dividing flow passages with filter in combined passage	462	...Pipe is connection to plate
		463	...Inserted holder

464	.Portable receptacle draining type	495	..Single ring or closed frame type
465	..Cooperating handles on receptacle and drainer	496	..Bound, fused or matted, e.g., porous shapes, sponges, etc.
466	..Receptacle spout	497.01	..Cylindrical, conical, or trough shape
467	...Within receptacle proper	497.1	...Helically wound
468	...Spaced from spout discharge	497.2	...Filter blank
469	..On or adjacent receptacle upper edge	497.3	...Conical
470	.Handled	498	..Perforated or grooved plates
471	..Ring type	499	..Screens, e.g., woven
472	.Vented	500.1	.Material
473	..Resting on supporting receiver, e.g., portable	500.21	..Semipermeable membrane
474	..At upper edge of filtrate receiver	500.22	...Isotropically pored
475	...Filter offset in cover	500.23	...Hollow fiber or cylinder
476	...Telescoped receivers or receiver sections	500.24	...Antithrombogenic coating or membrane
477	..Resting on internal stop or surface	500.25	...Metal containing
478	...Unitary filter medium and radially expandable retainer	500.26	...Glass
479	...Inner separate retainer	500.27	...Organic
480	...With contractor for expandable retainer	500.28	....Cyclic
481	...Longitudinal retainer or guide, (e.g., reflex coffee maker)	500.29	.....Cellulosic
482	..At lower end or prefilt receiver	500.3	.....Cellulose acetate
483	..Supported, shaped or superimposed formed mediums	500.31	.....Cellulose diacetate
484	..Medium within foraminous supporting container or sheath	500.32	.....Cellulose triacetate
485	..External cage-type support	500.33	....Homocyclic
486	..Spaced wall type, e.g., hollow leaf	500.34	.....Styrene
487	...Concentric, convolute or pleated	500.35	....Acrylate
488	..Abutted or superimposed members	500.36	....Alkene other than vinyl
489	...For series flow	500.37	....Amine
490	....Integral or coated layers	500.38	.....Amide
491	.....All fibrous	500.39	.....Imide
492	...Alternating dissimilar	500.4	....Carbonate
493.1	..Pleated	500.41	....Sulfone
493.2	...Bonded end caps	500.42	....Vinyl
493.3	...Rectangularly shaped	500.43	....Acrylonitrile
493.4	...Spirally formed	501	..Sterilizing or neutralizing agent containing
493.5	...Filter element	502.1	..Sorptive component containing
494.1	..Convolute	503	..Diverse granular or fibrous
494.2	..Metal	504	...With adhered coating or impregnant
494.3	...With edge spacer	505	...Including fibers
		506	..Coated or impregnated, e.g., adhesively bound
		507	...Fabrics
		508	...Fibrous
		509	....Inorganic
		510.1	..Porous unitary mass
		511	<b>LIQUID AS SEPARATING MEDIUM</b>
		512.1	<b>TANGENTIAL FLOW OR CENTRIFUGAL FLUID ACTION</b>
		512.2	.Multiple cyclone

512.3	.With movable means affecting flow	903	.Nitrogenous
513	<b>GRAVITATIONAL SEPARATOR</b>	904	..-CN containing
514	.Portable invertible, e.g., milk and cream separator	905	..Protein
515	..Selective withdrawal of constituents	906	.Phosphorus containing
516	..Resilient deformable isolator	907	..Phosphate slimes
517	...Hinged to handle	908	.Organic
518	..Sectional isolator	909	..Aromatic compound (e.g., PCB, phenol, etc.)
519	.Material supply distributor	910	..Nonbiodegradable surfacant
520	..Rotatable	911	.Cumulative poison
521	.Superposed compartments or baffles, e.g., parallel plate type	912	..Heavy metal
522	..Each with lighter constituent discharge	913	...Chromium
523	.Mechanical constituent mover	914	...Mercury
524	..Diverse serial	915	.Fluorine containing
525	..Scum sediment removal	916	.Odor (including control or abatement)
526	..Endless belt or chain	917	.Color
527	..Rectilinearly movable supporting means	918	<b>MISCELLANEOUS SPECIFIC TECHNIQUES</b>
528	..Horizontally rotating scraper	919	.Using combined systems by merging parallel diverse waste systems
529	...Polygonal container and correlating mover	920	.Using combined systems of sequential local and regional or municipal sewage systems
530	...Tank rim-supported carriage	921	.Flow equalization or time controlled stages or cycles
531	...Elevatable scrapers	922	.Oil spill cleanup (e.g., bacterial, etc.)
532.1	.Heavier constituent trap, chamber, or recess	923	..Using mechanical means (e.g., skimmers, pump, etc.)
532.2	..Septic tank	924	..Using physical agent (e.g., sponge, mop, etc.)
533	..Closure or valve controlled discharge	925	..Using chemical agent
534	...In sloping recess	926	.Using oxidation ditch (e.g., carousel, etc.)
535	...Downstream of separator	928	<b>PAPER MILL WASTE (E.G., WHITE WATER, BLACK LIQUOR, ETC.) TREATED</b>
536	...In side wall of separator	929	<b>HEMOULTRAFILTRATE VOLUME MEASUREMENT OR CONTROL PROCESSES</b>
537	..With discharge means for two or more lighter constituents	930	<b>PAINT DETACKIFYING</b>
538	.Lighter constituent trap	931	<b>ZEBRA MUSSEL MITIGATION OR TREATMENT</b>
539	..Gas vent or bypass		
540	..With discharge port		
541	<b>ADJUNCTS</b>		
542	<b>MISCELLANEOUS</b>		

**CROSS-REFERENCE ART COLLECTIONS**

900	<b>ULTRA PURE WATER (E.G., CONDUCTIVITY WATER)</b>
901	<b>SPECIFIED LAND FILL FEATURE (E.G., PREVENTION OF GROUND WATER FOULING)</b>
902	<b>MATERIALS REMOVED</b>

**FOREIGN ART COLLECTIONS**FOR 000 **CLASS-RELATED FOREIGN DOCUMENTS**

Any foreign patents or nonpatent literature from subclasses that have been reclassified have been transferred directly to the FOR Collections listed below. These Collections contain ONLY foreign patents or nonpatent literature. The parenthetical references in the Collection titles refer to the abolished subclasses from which these Collections were derived.

**STRUCTURAL INSTALLATION (210/153)**

- FOR 100 .Closed circulating systems (210/167)
- FOR 101 ..Lubrication (210/168)
- FOR 102 ..Aquarium or swimming pool (210/169)
- FOR 103 .Geographic (e.g., drainage ditch, septic, pond) (210/170)
- FOR 104 .Ancillary to storage tank (210/172)

**PROCESSES (210/600)**

- FOR 105 .Utilizing electrical or wave energy (directly applied to liquid or material being treated) (210/748)

**DIGESTS**

- DIG 3 **BELT ALIGNMENT**
- DIG 5 **COALESCER**
- DIG 6 **DEHYDRATORS**
- DIG 7 **DRIER BLOCKS**
- DIG 8 **FAT FRYER**
- DIG 9 **FLOATING COVER**
- DIG 13 **PART FLOW-FULL FLOW**
- DIG 17 **TWIST-ON**

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SOURCE CLASSIFICATION(S) OF PATENTS  
IN NEWLY ESTABLISHED SUBCLASSES REPORT

Generated by Data Control Division

<u>New Classification</u>	<u>Number of ORs</u>	<u>Source Classification</u>	<u>Number of ORs</u>
134/1	1	210/748	451
162/4	1	210/748	451
204/157.9	1	210/748	451
204/242	1	210/748	451
204/544	1	210/748	451
204/554	6	210/748	451
204/559	1	210/748	451
204/571	3	210/748	451
204/572	1	210/748	451
204/573	1	210/748	451
204/665	1	210/748	451
205/742	4	210/748	451
205/743	1	210/748	451
205/746	1	210/748	451
205/751	2	210/748	451
205/771	2	210/748	451
209/127.1	1	210/748	451
209/18	1	210/748	451
210/167.11	1	210/748	451
210/170.02	1	210/748	451
210/177	1	210/748	451
210/192	1	210/748	451
210/198.1	9	210/748	451
210/243	1	210/748	451
210/259	1	210/748	451
210/512.1	1	210/748	451
210/600	2	210/748	451
210/615	2	210/748	451
210/631	3	210/748	451
210/634	1	210/748	451
210/636	2	210/748	451
210/645	1	210/748	451
210/668	1	210/748	451
210/669	1	210/748	451
210/673	1	210/748	451
210/681	1	210/748	451
210/695	7	210/748	451
210/702	1	210/748	451
210/747	1	210/748	451
210/748.01	36	210/748	451
210/748.02	15	210/748	451
210/748.03	22	210/748	451
210/748.04	8	210/748	451

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SOURCE CLASSIFICATION(S) OF PATENTS  
IN NEWLY ESTABLISHED SUBCLASSES REPORT

Generated by Data Control Division

<u>New Classification</u>	<u>Number of ORs</u>	<u>Source Classification</u>	<u>Number of ORs</u>
210/748.05	28	210/748	451
210/748.06	7	210/748	451
210/748.07	8	210/748	451
210/748.08	7	210/748	451
210/748.09	17	210/748	451
210/748.1	11	210/748	451
210/748.11	2	210/748	451
	56	210/748	451
210/748.12	24	210/748	451
210/748.13	14	210/748	451
210/748.14	18	210/748	451
210/748.15	21	210/748	451
210/748.16	9	210/748	451
210/748.17	12	210/748	451
210/748.18	10	210/748	451
210/748.19	13	210/748	451
210/748.2	25	210/748	451
210/785	3	210/748	451
210/802	1	210/748	451
210/803	1	210/748	451
210/96.1	1	210/748	451
423/219	1	210/748	451
424/529	1	210/748	451
426/521	1	210/748	451
522/1	1	210/748	451
562/580	1	210/748	451
568/677	1	210/748	451
73/1.02	1	210/748	451
73/61.52	1	210/748	451
73/863.21	3	210/748	451
95/273	1	210/748	451

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DISPOSITION CLASSIFICATION(S) OF PATENTS  
FROM ABOLISHED SUBCLASSES REPORT

Generated by Data Control Division

<u>Source Classification</u>	<u>Number of ORs</u>	<u>New Classification</u>	<u>Number of ORs</u>
210/748	451	73/1.02	1
		73/61.52	1
		73/863.21	3
		95/273	1
		134/1	1
		162/4	1
		204/242	1
		204/544	1
		204/554	6
		204/559	1
		204/571	3
		204/572	1
		204/573	1
		204/665	1
		204/157.9	1
		205/742	4
		205/743	1
		205/746	1
		205/751	2
		205/771	2
		209/18	1
		209/127.1	1
		210/177	1
		210/192	1
		210/243	1
		210/259	1
		210/600	2
		210/615	2
		210/631	3
		210/634	1
		210/636	2
		210/645	1
		210/668	1
		210/669	1
		210/673	1
		210/681	1
		210/695	7
		210/702	1
		210/747	1
		210/785	3
		210/802	1
		210/803	1
		210/96.1	1

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DISPOSITION CLASSIFICATION(S) OF PATENTS  
FROM ABOLISHED SUBCLASSES REPORT

Generated by Data Control Division

<u>Source Classification</u>	<u>Number of ORs</u>	<u>New Classification</u>	<u>Number of ORs</u>
210/748	451	210/198.1	9
		210/512.1	1
		210/748.1	11
		210/748.2	25
		210/167.11	1
		210/170.02	1
		210/748.01	36
		210/748.02	15
		210/748.03	22
		210/748.04	8
		210/748.05	28
		210/748.06	7
		210/748.07	8
		210/748.08	7
		210/748.09	17
		210/748.11	2
		210/748.11	56
		210/748.12	24
		210/748.13	14
		210/748.14	18
		210/748.15	21
		210/748.16	9
		210/748.17	12
		210/748.18	10
		210/748.19	13
		423/219	1
		424/529	1
		426/521	1
		522/1	1
		562/580	1
		568/677	1

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C. CHANGES TO THE USPC-TO-IPC CONCORDANCE

<u>Class</u>	<u>USPC</u> <u>Subclass</u>	<u>IPC</u> <u>Subclass</u>	<u>Notation</u>
210	748.01	C02F	1/00
			1/34
			1/48
	748.02-748.05		1/34
			1/36
	748.06-748.09		1/30
	748.1-748.15		1/32
	748.16-748.2		1/00
			1/48
			1/72
			1/76
			1/78

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D. CHANGES TO THE DEFINITIONS

CLASS 95 – GAS SEPARATION: PROCESSES

Definitions Modified

Subclass 57: Under SEE OR SEARCH CLASS

Delete:

The reference to Class 210

Insert:

210, Liquid Purification or Separation, subclasses 748.01 through 748.2 for liquid purification or separation processes utilizing electrical or wave energy directly applied to liquid or material being treated.

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D. CHANGES TO THE DEFINITIONS

CLASS 96 – GAS SEPARATION: APPARATUS

Definitions Modified

Subclass 223: Under SEE OR SEARCH CLASS

Insert:

210, Liquid Purification or Separation, subclasses 748.01 through 748.2 for liquid purification or separation processes utilizing electrical or wave energy directly applied to liquid or material being treated.

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D. CHANGES TO THE DEFINITIONS

CLASS 203 – DISTILLATION: PROCESSES, SEPARATORY

Definitions Modified

Subclass 100: Under SEE OR SEARCH CLASS

Delete:

The reference to Class 210

Insert:

210, Liquid Purification or Separation, subclass 738 for a process of separating liquid mixtures using pulsations or oscillations.

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D. CHANGES TO THE DEFINITIONS

## CLASS 204 – CHEMISTRY: ELECTRICAL AND WAVE ENERGY

Definitions Modified

Subclass 554: Under SEE OR SEARCH CLASS

Delete:

The reference to Class 210

Insert:

210, Liquid Purification or Separation, subclasses 748.01 through 748.2 for general purification or separation of a liquid, especially water or waste water, utilizing electrical or wave energy (except the type provided for in Classes 204 or 205, unless (a) the Class 204 or Class 205 process is merely used to produce a reagent employed in a process otherwise provided for in Class 210 above subclasses 767-808 (e.g., electrolytic production of free chlorine in salt water which is employed to sterilize the salt water under treatment, etc.) or (b) the Class 204 or Class 205 type process includes at least one separate step provided for in Class 210 above subclasses 767-808 and except for general disinfecting, preserving, deodorizing, or sterilizing (as provided for in Class 422, subclasses 1-43) of a medium other than liquid water or waste water (e.g., Class 210, subclasses 748.11 and 748.12 provide for the use of ultraviolet light to sterilize, and therefor purify, liquid water, etc.)); and appropriate other subclasses for breaking or coalescing of oil/water emulsions which may involve the use of a magnetic field, but without using an electric field. See the line notes above drawn to Classes 205 and 208 for other loci providing for processes of treating emulsions or dispersions. Also see Class 516 for discussion of the placement of colloid systems (e.g., emulsion, dispersion, gels) in the U.S. Patent Classification System.

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D. CHANGES TO THE DEFINITIONS

CLASS 205 – ELECTROLYSIS: PROCESSES, COMPOSITIONS USED THEREIN, AND METHODS OF PREPARING THE COMPOSITIONS

Definitions Modified

Subclass 742: Under SEE OR SEARCH CLASS

Delete:

The reference to Class 210

Insert:

210, Liquid Purification or Separation, subclasses 748.01 through 748.2 for non-electrolytic purification or separation of a liquid utilizing electrical or wave energy directly applied to liquid or material being treated.

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D. CHANGES TO THE DEFINITIONS

CLASS 210 – LIQUID PURIFICATION OR SEPARATION

Definitions Abolished

Subclass(es)

748

Definitions Modified

Class Definition: Under SECTION III – REFERENCES TO OTHER CLASSES, SEE OR SEARCH CLASS

Delete:

The ninth and tenth references to Class 422

Subclass 131: Under SEE OR SEARCH THIS CLASS, SUBCLASS

Delete:

The reference to subclass 738

Insert:

738, for processes including pulsation or oscillation essential to the separation or purification.

Subclass 412: Under SEE OR SEARCH THIS CLASS, SUBCLASS

Delete:

The reference to subclass 748

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D. CHANGES TO THE DEFINITIONS

Subclass 760: Under SEE OR SEARCH THIS CLASS, SUBCLASS

Delete:

The reference to subclass 748

Insert:

748.01, through 748.2, particularly subclasses 748.15 and 748.19, for processes utilizing electrical or wave energy directly applied to liquid or material being treated, including the use or generation of ozone.

Definitions Established**748.01 Utilizing electrical or wave energy directly applied to liquid or material being treated:**

This subclass is indented under subclass 600. Process in which the liquid or a material is directly subjected to an electrical field or current or to a regular pulsating source of energy (e.g., irradiation, ultrasonic vibration, etc.) to cause liquid purification or separation or to generate a treating agent that is then used to purify or to separate the liquid.

- (1) Note. The process of utilizing electrical or wave energy on the liquid or a material to generate a treating agent used in a process of this class will be classified here. Electrolysis to directly separate a component from a liquid is classified in Class 205. For example, electrolysis of a liquid or a material to produce chlorine that kills bacteria in the liquid would be classified here, but removing mercury salts by plating out mercury would be classified in Class 205.
- (2) Note. The electrical or wave energy must be applied to the liquid or to the material being treated. Thus, for example, applying wave energy to apparatus in order to vibrate a filter to clean the filter is not classifiable here.

**SEE OR SEARCH THIS CLASS, SUBCLASS:**

695, for a process of liquid purification or separation using magnetic force.

785, and 791-798, for a process of liquid purification or separation including vibrating to clean a filter.

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D. CHANGES TO THE DEFINITIONS

## SEE OR SEARCH CLASS:

- 96, Gas Separation: Apparatus, subclass 224 for gas separation apparatus with sterilizing means in which the sterilizing means is a germicidal lamp.
- 204, Chemistry: Electrical and Wave Energy, subclasses 157.15 through 158.21 for processes of preparing a compound or element involving a chemical reaction induced by wave energy, subclasses 450 through 553 for electrophoresis or electro-osmosis, and subclasses 554 through 573 for electrical or simultaneous electrical and magnetic separation or purification of a liquid or magnetic treatment of a liquid (other than separation). See Class 204, References to Other Classes in the class definition, and Class 210, Lines With Other Classes and Within This Class and References to Other Classes in the class definition for an elaboration of the class line between Class 204 and Class 210.
- 205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, for electrolysis, in general, particularly subclasses 742 through 761 for electrolytic treatment of water, sewage, or other wastewater. See Lines With Other Classes and Within This Class and References to Other Classes of the Class 210 definition for an elaboration of the class line between Class 205 and Class 210.
- 250, Radiant Energy, subclasses 432 through 438 for fluent material containment, support, or transfer means with irradiating source or radiating fluent material.
- 422, Chemical Apparatus and Process Disinfecting, Deodorizing, Preserving, or Sterilizing, subclasses 1 through 43 for processes of disinfecting, preserving, deodorizing, or sterilizing an article or material; and subclasses 186-186.3 for a chemical reactor with means for applying electromagnetic wave energy or corpuscular radiation to reactants for initiating or perfecting chemical reaction.

**748.02 Sound waves:**

This subclass is indented under subclass 748.01. Process in which the wave energy applied is effected by the energy of compressional vibratory waves in a fluid medium, the waves being below, within, or above the audible spectrum.

**748.03 Destroying living organisms:**

This subclass is indented under subclass 748.02. Process in which an agent that has the ability to reproduce itself is killed.

- (1) Note. For purposes of this subclass, living organisms include animals, plants (e.g., algae, etc.), and microorganisms (e.g., bacteria, fungus, etc.), but not enzymes. The organism may reproduce sexually, asexually, or by mechanical division (caused by external agents) and regeneration (e.g., layering or cloning, etc.).

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D. CHANGES TO THE DEFINITIONS**748.04 Destroying/degradation of chemical contaminant:**

This subclass is indented under subclass 748.02. Process in which an undesirable component in the liquid is decomposed into a component that is less noxious.

**748.05 Separating particles:**

This subclass is indented under subclass 748.02. Process in which small pieces of something (e.g., a solid, biological cells, blood cells, etc.) are separated or removed from the liquid being treated.

- (1) Note. The sound waves may cause solidification or agglomeration of a component in the liquid.

**748.06 Laser:**

This subclass is indented under subclass 748.01. Process in which the wave energy applied is generated by a device that converts incident electromagnetic radiation of mixed frequencies to one or more discrete frequencies of highly amplified and coherent electromagnetic radiation (light amplification by stimulated emission of radiation (laser)).

- (1) Note. The radiation is usually in the ultraviolet, visible, or infrared regions of the spectrum.

**748.07 Microwaves:**

This subclass is indented under subclass 748.01. Process in which the wave energy applied has a wavelength between 1 millimeter and 1 meter.

**748.08 Infrared radiation:**

This subclass is indented under subclass 748.01. Process in which the wave energy applied has a wavelength between 700 nanometers and 1 millimeter.

**748.09 Visible light:**

This subclass is indented under subclass 748.01. Process in which the wave energy applied has a wavelength between 400 and 700 nanometers (e.g., solar light, daylight, sunlight, etc.).

**748.1 Ultraviolet radiation:**

This subclass is indented under subclass 748.01. Process in which the wave energy applied has a wavelength between 100 angstroms and 400 nanometers.

**748.11 Destroying living organisms:**

This subclass is indented under subclass 748.1. Process in which an agent that has the ability to reproduce itself is killed.

- (1) Note. For purposes of this subclass, living organism includes animals, plants (e.g., algae, etc.), and microorganisms (e.g., bacteria, fungus, etc.), but not enzymes. The organism may reproduce sexually, asexually, or by mechanical

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D. CHANGES TO THE DEFINITIONS

division (caused by external agents) and regeneration (e.g., layering or cloning, etc.).

**748.12 Including generation of treatment chemical:**

This subclass is indented under subclass 748.11. Process in which a treating agent is produced, generally by application of ultraviolet light.

**748.13 Destroying/degradation of chemical contaminant:**

This subclass is indented under subclass 748.1. Process in which an undesirable component in the liquid is decomposed into a component that is less noxious.

**748.14 Photocatalytic:**

This subclass is indented under subclass 748.13. Process in which the undesirable component in the liquid is decomposed by use of an agent that promotes photochemical reactions.

**748.15 Utilizing hydrogen peroxide, ozone, or oxygen:**

This subclass is indented under subclass 748.13. Process in which the undesirable component in the liquid is decomposed by use of hydrogen peroxide, ozone, or oxygen as a chemical reactant.

- (1) Note. The use of hydrogen peroxide, ozone, or oxygen can include the generation of hydroxyl radicals (OH).

**748.16 Including chemical treatment:**

This subclass is indented under subclass 748.01. Process in which a treating agent chemically reacts with a component in the liquid.

**748.17 Generating treatment chemical by electrical energy:**

This subclass is indented under subclass 748.16. Process in which the electrical energy (e.g., electrolysis, electrical discharge, etc.) is applied to a material in order to produce the treating agent, which is then used to treat the liquid.

**748.18 Metal ion or metal:**

This subclass is indented under subclass 748.17. Process in which the treating agent produced is a dissociated charged metal or free metal.

**748.19 Ozone:**

This subclass is indented under subclass 748.17. Process in which the treating agent produced is ozone.

**748.2 Chlorine or chlorine compound:**

This subclass is indented under subclass 748.17. Process in which the treating agent produced is chlorine or a chlorine compound.

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D. CHANGES TO THE DEFINITIONS**FOR 105 Utilizing electrical or wave energy (directly applied to liquid or material being treated):**

Foreign art collection for process in which the liquid is directly subjected to an electric field or current or to a regular pulsating source of energy (e.g., irradiation, ultrasonic vibration, etc.).

- (1) Note. The process of electrolysis of liquid to generate a treating agent for a process of this class will be classified here but electrolysis to directly separate a constituent is classified in Class 205. For example, electrolysis of a liquid to produce chlorine which kills bacteria in the liquid would be classified here but removing mercury salts by plating out mercury would be classified in Class 204.
- (2) Note. The wave energy must be applied to the liquid and vibrating a filter to clean it is not classifiable here but in subclass 785.

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D. CHANGES TO THE DEFINITIONS

## CLASS 241 – SOLID MATERIAL COMMINUTION OR DISINTEGRATION

Definitions Modified

Class Definition: Under SECTION IV – REFERENCES TO OTHER CLASSES, SEE OR SEARCH CLASS

Delete:

The reference to Class 210

Insert:

210, Liquid Purification or Separation, for a process or apparatus relating to the separation of a solid from a liquid as by gravitational separation or filtering. As an exception to the general line, Class 210, subclasses 173 and 174, provides for apparatus including a filtering screen or the like arranged to remove material from a moving stream and to comminute the removed material. In addition, Class 210 includes vegetable or animal matter comminution incidental to liquid purification; see particularly subclasses 173 and 174, for destruction of a filter cake or comminution incidental to agitation or feeding of the material to, during, and after separation; see particularly subclasses 106-108, 178, 179, 219, 298, 319, 332-334, 353-356, 383, 391-397, 407-415, 738, 769, 785, and 796. (See this class (241), Separation of Material in the class definition.)

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D. CHANGES TO THE DEFINITIONS

CLASS 250 – RADIANT ENERGY

Definitions Modified

Subclass 432: After the subclass definition

Insert:

SEE OR SEARCH CLASS:

210, Liquid Purification or Separation, subclasses 748.01 through 748.2 for liquid purification or separation processes utilizing electrical or wave energy directly applied to liquid or material being treated.

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D. CHANGES TO THE DEFINITIONS

CLASS 392 – ELECTRIC RESISTANCE HEATING DEVICES

Subclass 311: Under SEE OR SEARCH CLASS

Delete:

The reference to Class 210

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D. CHANGES TO THE DEFINITIONS

CLASS 422 – CHEMICAL APPARATUS AND PROCESS DISINFECTING, DEODORIZING, PRESERVING, OR STERILIZING

Subclass 1: Under SEE OR SEARCH CLASS

Insert:

210, Liquid Purification or Separation, subclasses 748.01 through 748.2 for liquid purification or separation processes utilizing electrical or wave energy directly applied to liquid or material being treated. See particularly subclass 748.03 for liquid purification or separation processes utilizing sound waves in a process involving the killing of living organisms, subclass 748.07 for liquid purification or separation processes utilizing microwaves, and subclasses 748.11 and 748.12 for liquid purification or separation processes utilizing ultraviolet light in a process involving the killing of living organisms.

Subclass 186: Under SEE OR SEARCH CLASS

Delete:

The reference to Class 210

Insert:

210, Liquid Purification or Separation, subclasses 748.01 through 748.2 for liquid purification or separation processes utilizing electrical or wave energy directly applied to liquid or material being treated.

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D. CHANGES TO THE DEFINITIONS

CLASS 604 – SURGERY

Subclass 6.08: Under SEE OR SEARCH CLASS

Delete:

The reference to Class 210

Insert:

210, Liquid Purification or Separation, subclasses 748.01 through 748.2 for liquid purification or separation processes utilizing electrical or wave energy directly applied to liquid or material being treated.