

CPC COOPERATIVE PATENT CLASSIFICATION

C02F TREATMENT OF WATER, WASTE WATER, SEWAGE, OR SLUDGE (separation in general [B01D](#); special arrangements on waterborne vessels or installations for treating water, waste water or sewage, e.g. for producing fresh water, [B63J](#); adding materials to water to prevent corrosion [C23F](#); treating radioactively-contaminated liquids [G21F 9/04](#); regeneration of reactants for recirculation into processes, see the relevant places for the processes)

NOTE

When classifying in this subclass, classification is also made in group [B01D 15/08](#) insofar as subject matter of general interest relating to chromatography is concerned.

WARNING

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

C02F 9/02-C02F 9/14 covered by [C02F 9/00](#) and subgroup

1/00	Treatment of water, waste water, or sewage (C02F 3/00 - C02F 9/00 take precedence)	1/16	. . . using waste heat from other processes
		1/18	. . . Transportable devices to obtain potable water
1/001	. {Processes for the treatment of water whereby the filtration technique is of importance (C02F 1/44 takes precedence; construction of filters in general B01D 24/00 - B01D 41/00)}	1/20	. by degassing, i.e. liberation of dissolved gases (degasification of liquids in general B01D 19/00 ; arrangement of degassing apparatus in boiler feed supply F22D)
1/002	. . {using small portable filters for producing potable water, e.g. personal travel or emergency equipment, survival kits, combat gear (C02F 1/003 takes precedence)}	1/22	. by freezing
		1/24	. by flotation (C02F 1/465 takes precedence)
		1/26	. by extraction
1/003	. . {using household-type filters for producing potable water, e.g. pitchers, bottles, faucet mounted devices (C02F 9/005 takes precedence)}	1/265	. . {Desalination}
		1/28	. by sorption (using ion-exchange C02F 1/42 ; sorbent compositions B01J)
1/004	. . {using large scale industrial sized filters}	1/281	. . {using inorganic sorbents}
1/005	. {Systems or processes based on supernatural or anthroposophic principles, cosmic or terrestrial radiation, geomancy or rhabdomancy}	1/283	. . {using coal, charred products, or inorganic mixtures containing them}
		1/285	. . {using synthetic organic sorbents}
1/006	. {Water distributors either inside a treatment tank or directing the water to several treatment tanks; Water treatment plants incorporating these distributors, with or without chemical or biological tanks (for settling tanks B01D 21/24)}	1/286	. . {using natural organic sorbents or derivatives thereof}
		1/288	. . {using composite sorbents, e.g. coated, impregnated, multi-layered}
		1/30	. by irradiation
2001/007	. {Processes including a sedimentation step}	1/302	. . {with microwaves}
1/008	. {Control or steering systems not provided for elsewhere in subclass C02F }	1/305	. . {with electrons}
		1/307	. . {with X-rays or gamma radiation}
1/02	. by heating (methods of steam generation F22B ; preheating boiler feed-water or accumulating preheated boiler feed-water F22D)	1/32	. . with ultra-violet light
		1/325	. . . {Irradiation devices or lamp constructions}
1/025	. . {Thermal hydrolysis}	1/34	. with mechanical oscillations
1/04	. . by distillation or evaporation	1/36	. . ultrasonic vibrations
1/041	. . . {by means of vapour compression}	1/38	. by centrifugal separation
1/042	. . . {Prevention of deposits}	1/385	. . {by centrifuging suspensions (centrifuges B04B)}
1/043	. . . {Details}	1/40	. Devices for separating or removing fatty or oily substances or similar floating material (cleaning or keeping clear the surface of open water from oil or like materials E02B 15/04 ; devices in sewers for separating liquid or solid substances from sewage E03F 5/14 , e.g. for use in drains leading to the sewer E03F 5/16)
1/045	. . . {for obtaining ultra-pure water}		
1/046	. . . {under vacuum produced by a barometric column}		
1/047	. . . {using eolic energy}		
1/048	. . . {Purification of waste water by evaporation}	1/42	. by ion-exchange (ion-exchange in general B01J)
1/06	. . . Flash evaporation		
1/08	. . . Thin film evaporation		
1/10	. . . by direct contact with a particulate solid or with a fluid, as a heat transfer medium		
1/12	. . . . Spray evaporation		
1/14	. . . using solar energy		

NOTE

When classifying in group [C02F 1/42](#), details of ion-exchangers can be further

C02F

C02F 1/42
(continued)

indexed by using indexing codes chosen from
[C02F 2001/422](#) - [C02F 2001/427](#)

devices can be further indexed by
using indexing codes chosen from
[C02F 2001/46185](#) - [C02F 2001/46195](#)

- 2001/422 . . {using anionic exchangers}
- 2001/425 . . {using cation exchangers}
- 2001/427 . . {using mixed beds}
- 1/44 . by dialysis, osmosis or reverse osmosis {(general membrane separation processes [B01D 61/00](#), membrane modules [B01D 63/00](#), electrodialysis [C02F 1/4693](#), combination of membrane modules and bioreactors [C02F 3/1268](#))}
- 1/441 . . {by reverse osmosis}
- 1/442 . . {by nanofiltration}
- 1/444 . . {by ultrafiltration or microfiltration}
- 1/445 . . {by forward osmosis}
- 1/447 . . {by membrane distillation (distillation and evaporation without the use of membranes [C02F 1/04](#))}
- 1/448 . . {by pervaporation}
- 1/46 . by electrochemical methods
- 1/4602 . . {for prevention or elimination of deposits}
- 1/4604 . . {for desalination of seawater or brackish water}
- 1/4606 . . {for producing oligodynamic substances to disinfect the water}
- 1/4608 . . {using electrical discharges}
- 1/461 . . by electrolysis
- 1/46104 . . . {Devices therefor; Their operating or servicing}
- 1/46109 {Electrodes}

NOTE

When classifying in group [C02F 1/46109](#), details of devices for electrolysis can be further indexed by using indexing codes chosen from [C02F 2001/46119](#) - [C02F 2001/46166](#)

- 1/46114 {Electrodes in particulate form or with conductive and/or non conductive particles between them}
- 2001/46119 {Cleaning the electrodes}
- 2001/46123 {Movable electrodes}
- 2001/46128 {Bipolar electrodes}
- 2001/46133 {characterised by the material}
- 2001/46138 {Electrodes comprising a substrate and a coating}
- 2001/46142 {Catalytic coating}
- 2001/46147 {Diamond coating}
- 2001/46152 {characterised by the shape or form (electrodes in particulate form or with conductive or non-conductive particles between them [C02F 1/46114](#))}
- 2001/46157 {Perforated or foraminous electrodes}
- 2001/46161 {Porous electrodes}
- 2001/46166 {Gas diffusion electrodes}
- 2001/46171 {Cylindrical or tubular shaped}
- 1/46176 {Galvanic cells}
- 1/4618 {for producing "ionised" acidic or basic water}

NOTE

When classifying in group [C02F 1/4618](#), details relating to the production of "ionised" acidic or basic water using electrolysis

- 2001/46185 {only anodic or acidic water, e.g. for oxidizing or sterilizing}
- 2001/4619 {only cathodic or alkaline water, e.g. for reducing}
- 2001/46195 {characterised by the oxidation reduction potential [ORP]}
- 1/463 . . . by electrocoagulation
- 1/465 . . . by electroflotation
- 1/467 . . . by electrochemical disinfection; {by electrooxydation or by electroreduction}
- 1/4672 {by electrooxydation}
- 1/4674 {with halogen or compound of halogens, e.g. chlorine, bromine}
- 1/4676 {by electroreduction}
- 1/4678 {of metals}
- 1/469 . . by electrochemical separation, e.g. by electro-osmosis, electrodialysis, electrophoresis
- 1/4691 . . . {Capacitive deionisation}
- 1/4693 . . . {electrodialysis}
- 1/4695 {electrodeionisation}
- 1/4696 . . . {electrophoresis}
- 1/4698 . . . {electro-osmosis}
- 1/48 . with magnetic or electric fields ([C02F 1/46](#) takes precedence)
- 1/481 . . {using permanent magnets}
- 1/482 . . . {located on the outer wall of the treatment device, i.e. not in contact with the liquid to be treated, e.g. detachable}
- 1/484 . . {using electromagnets}
- 1/485 . . . {located on the outer wall of the treatment device, i.e. not in contact with the liquid to be treated, e.g. detachable}
- 1/487 . . {using high frequency electromagnetic fields, e.g. pulsed electromagnetic fields}
- 1/488 . . {for separation of magnetic materials, e.g. magnetic flocculation}
- 1/50 . by addition or application of a germicide or by oligodynamic treatment {([C02F 1/4606](#), [C02F 1/467](#), [C02F 1/76](#) take precedence)}
- 1/505 . . {by oligodynamic treatment}
- 1/52 . by flocculation or precipitation of suspended impurities {([C02F 1/463](#) takes precedence)}
- 1/5209 . . {Regulation methods for flocculation or precipitation}
- 2001/5218 . . {Crystallization}
- 1/5227 . . {Processes for facilitating the dissolution of solid flocculants in water}
- 1/5236 . . {using inorganic agents}
- 1/5245 . . . {using basic salts, e.g. of aluminium and iron}
- 1/5254 . . . {using magnesium compounds and phosphoric acid for removing ammonia}
- 1/5263 . . {using natural chemical compounds}
- 1/5272 . . {using specific organic precipitants}
- 1/5281 . . {Installations for water purification using chemical agents}
- 1/529 . . {Processes or devices for preparing lime water}
- 1/54 . . using organic material
- 1/542 . . . {Phosphorus compounds}
- 1/545 . . . {Silicon compounds}
- 1/547 . . . {Tensides}

- 1/56 . . . Macromolecular compounds
- 1/58 . . by removing specified dissolved compounds
(using ion-exchange [C02F 1/42](#); softening water [C02F 5/00](#))
- 1/583 . . {by removing fluoride or fluorine compounds}
- 1/586 . . {by removing ammoniacal nitrogen (for
biological methods [C02F 3/00](#))}
- 1/60 . . Silicon compounds {(C02F 1/583 takes
precedence)}
- 1/62 . . Heavy metal compounds
- 1/64 . . . of iron or manganese
- 1/645 {Devices for iron precipitation and treatment
by air}
- 1/66 . . by neutralisation; pH adjustment (for degassing
[C02F 1/20](#); using ion-exchange [C02F 1/42](#); for
flocculation or precipitation of suspended impurities
[C02F 1/52](#); for removing dissolved compounds
[C02F 1/58](#))
- 1/68 . . by addition of specified substances, e.g. trace
elements, for ameliorating potable water ([medicinal
water A61K](#))
- 1/681 . . {by addition of solid materials for removing an
oily layer on water}
- 1/682 . . {by addition of chemical compounds for
dispersing an oily layer on water}
- 1/683 . . {by addition of complex-forming compounds}
- 1/685 . . {Devices for dosing the additives}
- 1/686 . . . {Devices for dosing liquid additives}
- 1/687 . . . {Devices for dosing solid compounds}
- 1/688 . . . {Devices in which the water progressively
dissolves a solid compound}
- 1/70 . . by reduction {(C02F 1/4676 takes precedence)}
- 1/705 . . {Reduction by metals}
- 1/72 . . by oxidation {(C02F 1/4672 takes precedence)}
- 1/722 . . {Oxidation by peroxides}
- 1/725 . . {by catalytic oxidation}
- 1/727 . . {using pure oxygen or oxygen rich gas}
- 1/74 . . with air (aeration of stretches of water [C02F 7/00](#))
- 1/76 . . with halogens or compounds of halogens
{(C02F 1/4674 takes precedence)}
- 1/763 . . . {Devices for the addition of such compounds in
gaseous form}
- 1/766 . . . {by means of halogens other than chlorine or
of halogenated compounds containing halogen
other than chlorine}
- 1/78 . . with ozone {(C02F 1/4672 takes precedence)}
- 3/00 Biological treatment of water, waste water, or
sewage {(C02F 1/006 takes precedence)}**
- 2003/001 . . {using granular carriers or supports for the
microorganisms}
- 2003/003 . . {using activated carbon or the like}
- 3/005 . . {Combined electrochemical biological processes
(aeration by electrolytically produced oxygen
bubbles [C02F 3/02](#))}
- 3/006 . . {Regulation methods for biological treatment}
- 2003/008 . . {using anaerobic baffled reactors}
- 3/02 . . Aerobic processes
- 3/025 . . {Biological purification using sources of oxygen
other than air, oxygen or ozone}
- 3/04 . . using trickle filters
- 3/043 . . . {Devices for distributing water over trickle
filters}
- 3/046 . . . {Soil filtration}
- 3/06 . . using submerged filters
- 3/08 . . using moving contact bodies
- 3/082 . . . {Rotating biological contactors}
- 3/085 . . . {Fluidized beds}
- 3/087 {Floating beds with contact bodies having a
lower density than water}
- 3/10 . . Packings; Fillings; Grids ([packing elements in
general B01J 19/30, B01J 19/32](#))
- 3/101 . . . {Arranged-type packing, e.g. stacks, arrays}
- 3/102 . . . {Permeable membranes}
- 3/103 . . . {Textile-type packing}
- 3/104 . . . {Granular carriers}
- 3/105 . . . {Characterized by the chemical composition}
- 3/106 {Carbonaceous materials}
- 3/107 {Inorganic materials, e.g. sand, silicates}
- 3/108 {Immobilising gels, polymers or the like}
- 3/109 . . . {Characterized by the shape ([C02F 3/104 takes
precedence](#))}
- 3/12 . . Activated sludge processes
- 3/1205 . . . {Particular type of activated sludge processes}
- 3/121 {Multistep treatment}
- 3/1215 {Combinations of activated sludge treatment
with precipitation, flocculation, coagulation
and separation of phosphates}
- 3/1221 {comprising treatment of the recirculated
sludge}
- 3/1226 {comprising an absorbent material suspended
in the mixed liquor}
- 3/1231 {Treatments of toxic sewage}
- 3/1236 . . . {Particular type of activated sludge
installations}
- 3/1242 {Small compact installations for use in
homes, apartment blocks, hotels or the like}
- 3/1247 {comprising circular tanks with elements,
e.g. decanters, aeration basins, in the form
of segments, crowns or sectors}
- 3/1252 {Cylindrical tanks with horizontal axis}
- 3/1257 {Oxidation ditches}
- 3/1263 {Sequencing batch reactors [SBR]}
- 3/1268 {Membrane bioreactor systems}
- 3/1273 {Submerged membrane bioreactors}
- 3/1278 . . . {Provisions for mixing or aeration of the mixed
liquor}
- 3/1284 {Mixing devices}
- 3/1289 {Aeration by saturation under super-
atmospheric pressure}
- 3/1294 {"Venturi" aeration means}
- 3/14 . . . using surface aeration
- 3/145 {Protection against aerosols}
- 3/16 the aerator having a vertical axis
- 3/165 {using vertical aeration channels}
- 3/18 the aerator having a horizontal axis
- 3/20 . . . using diffusers
- 3/201 {Perforated, resilient plastic diffusers, e.g.
membranes, sheets, foils, tubes, hoses}
- 3/202 {Aeration by electrolytically produced
oxygen bubbles}
- 3/203 {Swing diffusers}
- 3/205 {Moving, e.g. rotary, diffusers; Stationary
diffusers with moving, e.g. rotary,
distributors}
- 3/206 {with helical screw impellers}
- 3/207 {with axial thrust propellers}

- 3/208 {Membrane aeration ([C02F 3/201](#) takes precedence)}
- 3/22 . . . using circulation pipes
- 3/223 {using "air-lift"}
- 3/226 {"Deep shaft" processes}
- 3/24 . . . using free-fall aeration or spraying
- 3/26 . . . using pure oxygen or oxygen-rich gas
- 3/28 . Anaerobic digestion processes
- 3/2806 . . {Anaerobic processes using solid supports for micro-organisms}
- 3/2813 . . {using anaerobic contact processes}
- 3/282 . . {using anaerobic sequencing batch reactors}
- 3/2826 . . {using anaerobic filters}
- 3/2833 . . {using fluidized bed reactors}
- 3/284 . . {using anaerobic baffled reactors}
- 3/2846 . . {using upflow anaerobic sludge blanket [UASB] reactors}
- 3/2853 . . {using anaerobic membrane bioreactors}
- 3/286 . . {including two or more steps}
- 3/2866 . . {Particular arrangements for anaerobic reactors}
- 3/2873 . . . {with internal draft tube circulation}
- 3/288 . . . {comprising septic tanks combined with a filter}
- 3/2886 . . . {Two story combinations of the Imhoff tank type}
- 3/2893 . . . {with biogas recycling}
- 3/30 . Aerobic and anaerobic processes
- 3/301 . . {Aerobic and anaerobic treatment in the same reactor}
- 3/302 . . {Nitrification and denitrification treatment ([C02F 3/308](#) takes precedence)}
- 3/303 . . . {characterised by the nitrification}
- 3/305 . . . {characterised by the denitrification}
- 3/306 {Denitrification of water in soil}
- 3/307 . . . {characterised by direct conversion of nitrite to molecular nitrogen, e.g. by using the Anammox process}
- 3/308 . . {Biological phosphorus removal}
- 3/32 . characterised by the animals or plants used, e.g. algae
- 3/322 . . {use of algae}
- 3/325 . . . {as symbiotic combination of algae and bacteria}
- 3/327 . . {characterised by animals and plants}
- 3/34 . characterised by the micro-organisms used
- 3/341 . . {Consortia of bacteria}
- 3/342 . . {characterised by the enzymes used}
- 3/343 . . {for digestion of grease, fat, oil}
- 3/344 . . {for digestion of mineral oil}
- 3/345 . . {for biological oxidation or reduction of sulfur compounds}
- 3/346 . . {Iron bacteria}
- 3/347 . . {Use of yeasts or fungi ([C02F 3/322](#) takes precedence)}
- 3/348 . . {characterised by the way or the form in which the microorganisms are added or dosed}
- 5/00 Softening water; Preventing scale; Adding scale preventatives or scale removers to water, e.g. adding sequestering agents (softening using ion-exchange [C02F 1/42](#))**
- 5/02 . Softening water by precipitation of the hardness
- 5/025 . . {Hot-water softening devices}
- 5/04 . . using phosphates ([C02F 5/06](#) takes precedence)
- 5/06 . . using calcium compounds
- 5/08 . Treatment of water with complexing chemicals or other solubilising agents for softening, scale prevention or scale removal, e.g. adding sequestering agents
- 5/083 . . {Mineral agents}
- 5/086 . . {Condensed phosphates}
- 5/10 . . using organic substances
- 5/105 . . . {combined with inorganic substances}
- 5/12 . . . containing nitrogen ([C02F 5/14](#) takes precedence)
- 5/125 {combined with inorganic substances}
- 5/14 . . . containing phosphorus
- 5/145 {combined with inorganic substances}
- 7/00 Aeration of stretches of water**
- 9/00 Multistage treatment of water, waste water, or sewage**
- NOTES**
- 1. This group covers only those combined treating operations where the interest is directed to the relationship between the steps.
- 2. This group does not cover, for example, chemical treatment followed by settlement or biological treatment involving normal mechanical treatment.
- 9/005 . {Portable or detachable small-scale multistage treatment devices, e.g. point of use or laboratory water purification systems ([single-stage processes in combination with filtration techniques \[C02F 1/002\]\(#\) or \[C02F 1/003\]\(#\)](#))}
- 11/00 Treatment of sludge; Devices therefor**
- 11/002 . {Sludge treatment using liquids immiscible with water}
- 11/004 . {Sludge detoxification}
- 11/006 . {Electrochemical treatment, e.g. electro-oxidation or electro-osmosis}
- 11/008 . {Sludge treatment by fixation or solidification}
- 11/02 . Biological treatment
- 11/04 . . Anaerobic treatment; Production of methane by such processes
- 11/06 . by oxidation ([incinerators for burning waste liquors, e.g. sulfite liquor from paper-making plant \[F23G 7/04\]\(#\)](#))
- 11/08 . . Wet air oxidation
- 11/083 . . . {using deep well reactors}
- 11/086 . . . {in the supercritical state}
- 11/10 . by pyrolysis
- 11/12 . by de-watering, drying, or thickening
- 11/121 . . {Processes for mechanical dehydration of sludge, e.g. by filters}
- 11/122 . . . {using press filters ([C02F 11/123](#) takes precedence)}
- 11/123 . . . {using belt or band filters}
- 11/125 . . . {using screw filters}
- 11/126 . . . {using drum filters}
- 11/127 . . . {by centrifugation}
- 11/128 . . . {Batch processes}
- 11/14 . . with addition of chemical agents
- 11/16 . . using drying or composting beds
- 11/18 . by thermal conditioning ([by pyrolysis \[C02F 11/10\]\(#\)](#))

11/185	. . {by pasteurisation}	2103/10	. from quarries or from mining activities
11/20	. . by freezing	2103/12	. from the silicate or ceramic industries, e.g. waste waters from cement or glass factories
2101/00	Nature of the contaminant	2103/14	. Paint wastes
2101/003	. {Explosive compounds, e.g. TNT}	2103/16	. from metallurgical processes, i.e. from the production, refining or treatment of metals, e.g. galvanic wastes
2101/006	. {Radioactive compounds}	2103/18	. from the purification of gaseous effluents
2101/10	. Inorganic compounds	2103/20	. from animal husbandry
2101/101	. . {Sulfur compounds}	2103/22	. from the processing of animals, e.g. poultry, fish, or parts thereof
2101/103	. . {Arsenic compounds}	2103/24	. . from tanneries
2101/105	. . {Phosphorus compounds}	2103/26	. from the processing of plants or parts thereof
2101/106	. . {Selenium compounds}	2103/28	. . from the paper or cellulose industry
2101/108	. . {Boron compounds}	2103/30	. from the textile industry
2101/12	. . Halogens or halogen-containing compounds	2103/32	. from the food or foodstuff industry, e.g. brewery waste waters
2101/14	. . . Fluorine or fluorine-containing compounds	2103/322	. . {from vegetable oil production, e.g. olive oil production}
2101/16	. . Nitrogen compounds, e.g. ammonia	2103/325	. . {from processes relating to the production of wine products}
2101/163	. . . {Nitrates}	2103/327	. . {from processes relating to the production of dairy products}
2101/166	. . . {Nitrites}	2103/34	. from industrial activities not provided for in groups C02F 2103/12 - C02F 2103/32
2101/18	. . . Cyanides	2103/343	. . {from the pharmaceutical industry, e.g. containing antibiotics}
2101/20	. . Heavy metals or heavy metal compounds	2103/346	. . {from semiconductor processing, e.g. waste water from polishing of wafers}
2101/203	. . . {Iron or iron compound}	2103/36	. . from the manufacture of organic compounds
2101/206	. . . {Manganese or manganese compounds}	2103/365	. . . {from petrochemical industry (e.g. refineries)}
2101/22	. . . Chromium or chromium compounds, e.g. chromates	2103/38	. . . Polymers
2101/30	. Organic compounds	2103/40	. . from the manufacture or use of photosensitive materials
2101/301	. . {Detergents, surfactants}	2103/42	. from bathing facilities, e.g. swimming pools
2101/303	. . {Complexing agents}	2103/44	. from vehicle washing facilities
2101/305	. . {Endocrine disruptive agents}	2201/00	Apparatus for treatment of water, waste water or sewage
2101/306	. . {Pesticides}	2201/001	. Build in apparatus for autonomous on board water supply and wastewater treatment (e.g. for aircrafts, cruiseships, oil drilling platforms, railway trains, space stations)
2101/308	. . {Dyes; Colorants; Fluorescent agents}	2201/002	. Construction details of the apparatus
2101/32	. . Hydrocarbons, e.g. oil	2201/003	. . Coaxial constructions, e.g. a cartridge located coaxially within another
2101/322	. . . {Volatile compounds, e.g. benzene}	2201/004	. . Seals, connections
2101/325	. . . {Emulsions}	2201/005	. . Valves
2101/327	. . . {Polyaromatic Hydrocarbons [PAH's]}	2201/006	. . Cartridges
2101/34	. . containing oxygen	2201/007	. . Modular design
2101/345	. . . {Phenols}	2201/008	. Mobile apparatus and plants, e.g. mounted on a vehicle (for biological treatment C02F 2203/008)
2101/36	. . containing halogen	2201/009	. Apparatus with independent power supply, e.g. solar cells, windpower, fuel cells (for electrolysis apparatus C02F 2201/46165)
2101/363	. . . {PCB's; PCP's}	2201/32	. Details relating to UV-irradiation devices
2101/366	. . . {Dioxine; Furan}	2201/322	. . Lamp arrangement
2101/38	. . containing nitrogen	2201/3221	. . . Lamps suspended above a water surface or pipe
2101/40	. . containing sulfur	2201/3222	. . . Units using UV-light emitting diodes [LED]
2103/00	Nature of the water, waste water, sewage or sludge to be treated	2201/3223	. . . Single elongated lamp located on the central axis of a tubular reactor
2103/001	. {Runoff or storm water}	2201/3224	. . . Units using UV-light guiding optical fibers
2103/002	. {Grey water, e.g. from clothes washers, showers or dishwashers}	2201/3225	. . . Lamps immersed in an open channel, containing the liquid to be treated
2103/003	. {Wastewater from hospitals, laboratories and the like, heavily contaminated by pathogenic microorganisms}		
2103/005	. {Black water originating from toilets}		
2103/006	. {Dental effluents}		
2103/007	. {Contaminated open waterways, rivers, lakes or ponds}		
2103/008	. {Originating from marine vessels, ships and boats, e.g. bilge water or ballast water}		
2103/02	. Non-contaminated water, e.g. for industrial water supply		
2103/023	. . {Water in cooling circuits}		
2103/026	. . {Treating water for medical or cosmetic purposes}		
2103/04	. . For obtaining ultra-pure water		
2103/06	. Contaminated groundwater or leachate		
2103/08	. Seawater, e.g. for desalination		

2201/3226	. . .	Units using UV-light emitting lasers
2201/3227	. . .	Units with two or more lamps
2201/3228	. . .	Units having reflectors, e.g. coatings, baffles, plates, mirrors
2201/324	. .	Lamp cleaning installations, e.g. brushes
2201/326	. .	Lamp control systems
2201/328	. .	Having flow diverters (baffles)
2201/46	.	Apparatus for electrochemical processes
2201/461	. .	Electrolysis apparatus
2201/46105	. . .	Details relating to the electrolytic devices
2201/4611	. . . .	Fluid flow
2201/46115	. . . .	Electrolytic cell with membranes or diaphragms
2201/4612	. . . .	Controlling or monitoring
2201/46125	. . . . .	Electrical variables
2201/4613	. . . . .	Inverting polarity
2201/46135	. . . . .	Voltage
2201/4614	. . . . .	Current
2201/46145	. . . . .	Fluid flow
2201/4615	. . . . .	Time
2201/46155	. . . .	Heating or cooling
2201/4616	. . . .	Power supply
2201/46165	. . . .	Special power supply, e.g. solar energy or batteries
2201/4617	. . . . .	DC only
2201/46175	. . . . .	Electrical pulses
2201/4618	. . . .	Supplying or removing reactants or electrolyte
2201/46185	. . . . .	Recycling the cathodic or anodic feed
2201/4619	. . . .	Supplying gas to the electrolyte (gas diffusion electrodes C02F 2001/46166)
2201/46195	. . . .	Cells containing solid electrolyte
2201/48	.	Devices for applying magnetic or electric fields
2201/483	. .	using coils
2201/486	. .	using antenna
2201/78	.	Details relating to ozone treatment devices
2201/782	. .	Ozone generators
2201/784	. .	Diffusers or nozzles for ozonation
2203/00		Apparatus and plants for the biological treatment of water, waste water or sewage
2203/002	. .	comprising an initial buffer container
2203/004	. .	comprising a selector reactor for promoting floc-forming or other bacteria
2203/006	. .	details of construction, e.g. specially adapted seals, modules, connections
2203/008	. .	Mobile apparatus and plants, e.g. mounted on a vehicle
2209/00		Controlling or monitoring parameters in water treatment
2209/001	. .	Upstream control, i.e. monitoring for predictive control
2209/003	. .	Downstream control, i.e. outlet monitoring, e.g. to check the treating agents, such as halogens or ozone, leaving the process
2209/005	. .	Processes using a programmable logic controller [PLC]
2209/006	. .	comprising a software program or a logic diagram
2209/008	. .	comprising telecommunication features, e.g. modems or antennas
2209/01	.	Density
2209/02	.	Temperature
2209/03	.	Pressure
2209/04	.	Oxidation reduction potential [ORP]
2209/05	.	Conductivity or salinity
2209/055	. .	Hardness
2209/06	.	pH
2209/07	.	Alkalinity
2209/08	.	Chemical Oxygen Demand [COD]; Biological Oxygen Demand [BOD]
2209/09	.	Viscosity
2209/10	.	Solids, e.g. total solids [TS], total suspended solids [TSS] or volatile solids [VS]
2209/105	. .	Particle number, particle size or particle characterisation
2209/11	.	Turbidity
2209/12	.	Volatile Fatty Acids (VFAs)
2209/14	.	NH ₃ -N
2209/15	.	NO ₃ -N
2209/16	.	Total nitrogen (tkN-N)
2209/18	.	PO ₄ -P
2209/19	.	SO ₄ -S
2209/20	.	Total organic carbon [TOC]
2209/21	.	Dissolved organic carbon [DOC]
2209/22	.	O ₂
2209/225	. .	in the gas phase
2209/23	.	O ₃
2209/235	. .	in the gas phase
2209/24	.	CO ₂
2209/245	. .	in the gas phase
2209/26	.	H ₂ S
2209/265	. .	in the gas phase
2209/28	.	CH ₄
2209/285	. .	CH ₄ in the gas phase
2209/29	.	Chlorine compounds
2209/30	.	H ₂
2209/32	.	CO
2209/34	.	N ₂ O
2209/36	.	Biological material, e.g. enzymes or ATP
2209/38	.	Gas flow rate
2209/40	.	Liquid flow rate
2209/42	.	Liquid level
2209/44	.	Time
2209/445	. .	Filter life
2301/00		General aspects of water treatment
2301/02	.	Fluid flow conditions
2301/022	. .	Laminar
2301/024	. .	Turbulent
2301/026	. .	Spiral, helicoidal, radial
2301/028	. .	Tortuous
2301/04	.	Flow arrangements
2301/043	. .	Treatment of partial or bypass streams
2301/046	. .	Recirculation with an external loop
2301/06	.	Pressure conditions
2301/063	. .	Underpressure, vacuum
2301/066	. .	Overpressure, high pressure
2301/08	.	Multistage treatments, e.g. repetition of the same process step under different conditions
2301/10	.	Temperature conditions for biological treatment
2301/103	. .	Psychrophilic treatment
2301/106	. .	Thermophilic treatment
2303/00		Specific treatment goals

C02F

- 2303/02 . Odour removal or prevention of malodour
- 2303/04 . Disinfection
- 2303/06 . Sludge reduction, e.g. by lysis
- 2303/08 . Corrosion inhibition
- 2303/10 . Energy recovery
- 2303/12 . Prevention of foaming
- 2303/14 . Maintenance of water treatment installations
- 2303/16 . Regeneration of sorbents, filters
- 2303/18 . Removal of treatment agents after treatment
- 2303/185 . . The treatment agent being halogen or a halogenated compound
- 2303/20 . Prevention of biofouling
- 2303/22 . Eliminating or preventing deposits, scale removal, scale prevention ([C02F 1/042](#), [C02F 1/4602](#), [C02F 5/00](#) take precedence)
- 2303/24 . Separation of coarse particles, e.g. by using sieves or screens
- 2303/26 . Reducing the size of particles, liquid droplets or bubbles, e.g. by crushing, grinding, spraying, creation of micro-bubbles or nano-bubbles
- 2305/00 Use of specific compounds during water treatment**
- 2305/02 . Specific form of oxidant
- 2305/023 . . Reactive oxygen species, singlet oxygen, OH radical
- 2305/026 . . Fenton's reagent
- 2305/04 . Surfactants, used as part of a formulation or alone
- 2305/06 . Nutrients for stimulating the growth of microorganisms
- 2305/08 . Nanoparticles or nanotubes
- 2305/10 . Photocatalysts
- 2305/12 . Inert solids used as ballast for improving sedimentation ([C02F 3/1226](#) takes precedence)
- 2305/14 . Additives which dissolves or releases substances when predefined environmental conditions are reached, e.g. pH or temperature
- 2307/00 Location of water treatment or water treatment device**
- 2307/02 . as part of a bottle
- 2307/04 . as part of a pitcher or jug
- 2307/06 . Mounted on or being part of a faucet, shower handle or showerhead
- 2307/08 . Treatment of wastewater in the sewer, e.g. to reduce grease, odour
- 2307/10 . as part of a potable water dispenser, e.g. for use in homes or offices
- 2307/12 . as part of household appliances such as dishwashers, laundry washing machines or vacuum cleaners
- 2307/14 . Treatment of water in water supply networks, e.g. to prevent bacterial growth