<table>
<thead>
<tr>
<th>Class 422</th>
<th>Chemical Apparatus and Process Disinfecting, Deodorizing, Preserving, or Sterilizing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Process disinfecting, preserving, deodorizing, or sterilizing</td>
</tr>
<tr>
<td>2</td>
<td>.Step of warning or decreasing hazard of process</td>
</tr>
<tr>
<td>3</td>
<td>.Process control in response to analysis</td>
</tr>
<tr>
<td>4</td>
<td>.A gas is substance acted upon</td>
</tr>
<tr>
<td>5</td>
<td>.Deodorizing</td>
</tr>
<tr>
<td>6</td>
<td>.Affecting structure, article, etc., submerged in marine environment</td>
</tr>
<tr>
<td>7</td>
<td>.Maintaining environment nondestructive to metal</td>
</tr>
<tr>
<td>8</td>
<td>.Using protective article (e.g., antitarnish fabric, etc.)</td>
</tr>
<tr>
<td>9</td>
<td>.Using gaseous preservative, preservative added to gaseous phase of environment, or maintaining gaseous phase nondestructive</td>
</tr>
<tr>
<td>10</td>
<td>.Manipulating gaseous environment for preservative purpose</td>
</tr>
<tr>
<td>11</td>
<td>.Steam environment</td>
</tr>
<tr>
<td>12</td>
<td>.Aqueous acid environment (i.e., pH less than or equal to 4.1)</td>
</tr>
<tr>
<td>13</td>
<td>.Aqueous alkali environment (i.e., pH greater than or equal to 8.4)</td>
</tr>
<tr>
<td>14</td>
<td>.Essentially pure water environment</td>
</tr>
<tr>
<td>15</td>
<td>.Using organic compound having phosphorus</td>
</tr>
<tr>
<td>16</td>
<td>.Using organic nitrogen compound other than ammonium salt</td>
</tr>
<tr>
<td>17</td>
<td>.Using organic carboxylic acid or salt thereof</td>
</tr>
<tr>
<td>18</td>
<td>.Using inorganic silicon or phosphorus compound</td>
</tr>
<tr>
<td>19</td>
<td>.Using heavy metal or compound thereof</td>
</tr>
<tr>
<td>20</td>
<td>.Using sonic or ultrasonic energy</td>
</tr>
<tr>
<td>21</td>
<td>.Using microwave energy</td>
</tr>
<tr>
<td>22</td>
<td>.Using direct contact with electrical or electromagnetic radiation</td>
</tr>
<tr>
<td>23</td>
<td>.In atmosphere other than air</td>
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<tr>
<td>24</td>
<td>.Ultraviolet</td>
</tr>
<tr>
<td>25</td>
<td>.Including additional step of preventing damage to sealed container</td>
</tr>
<tr>
<td>26</td>
<td>.Using direct contact steam to disinfect or sterilize</td>
</tr>
<tr>
<td>27</td>
<td>.And additional disinfecting or sterilizing agent</td>
</tr>
<tr>
<td>28</td>
<td>.Using disinfecting or sterilizing substance</td>
</tr>
<tr>
<td>29</td>
<td>.In situ generation of agent other than aldehyde or glycol</td>
</tr>
<tr>
<td>30</td>
<td>.And removing the agent by chemical reaction or sorption</td>
</tr>
<tr>
<td>31</td>
<td>.And recovering or reusing the agent</td>
</tr>
<tr>
<td>32</td>
<td>.Treating bulk material</td>
</tr>
<tr>
<td>33</td>
<td>.With positive pressure or vacuum</td>
</tr>
<tr>
<td>34</td>
<td>.Using alkylene oxide</td>
</tr>
<tr>
<td>35</td>
<td>.Using cyanide</td>
</tr>
<tr>
<td>36</td>
<td>.Using aldehyde</td>
</tr>
<tr>
<td>37</td>
<td>.Using halogen or halogen-containing compound</td>
</tr>
<tr>
<td>38</td>
<td>.Using fluent heat transfer medium other than air</td>
</tr>
<tr>
<td>39</td>
<td>.By sudden release of pressure</td>
</tr>
<tr>
<td>40</td>
<td>.Process of storage or protection</td>
</tr>
<tr>
<td>41</td>
<td>.Of liquid</td>
</tr>
<tr>
<td>42</td>
<td>.By preventing evaporation</td>
</tr>
<tr>
<td>43</td>
<td>.Of water</td>
</tr>
<tr>
<td>44</td>
<td>Blood treating device for transfusible blood</td>
</tr>
<tr>
<td>45</td>
<td>.Oxygenator</td>
</tr>
<tr>
<td>46</td>
<td>.Including integral heat-exchange means</td>
</tr>
<tr>
<td>47</td>
<td>.Bubble or foam producing</td>
</tr>
<tr>
<td>48</td>
<td>.Membrane</td>
</tr>
<tr>
<td>49</td>
<td>including means facilitating part replacement or repair other than solid, extended surface, fluid contact means analyzer, structured indicator, or manipulative laboratory device</td>
</tr>
<tr>
<td>50</td>
<td>.Structured visual or optical indicator, per se</td>
</tr>
<tr>
<td>51</td>
<td>.Flame ionization detector</td>
</tr>
<tr>
<td>52</td>
<td>.Calorimeter</td>
</tr>
<tr>
<td>53</td>
<td>.Chemiluminescent</td>
</tr>
<tr>
<td>54</td>
<td>.Corrosion tester</td>
</tr>
<tr>
<td>55</td>
<td>.Structured visual or optical indicator, per se</td>
</tr>
<tr>
<td>56</td>
<td>.In a holder or container</td>
</tr>
<tr>
<td>57</td>
<td>.Structure to facilitate analysis of the results</td>
</tr>
<tr>
<td>58</td>
<td>.Read by automated means</td>
</tr>
<tr>
<td>59</td>
<td>.Registration of the structure within the analyzer</td>
</tr>
</tbody>
</table>

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

...Tubular
...Including a swab
...Well plate
...Structure for contacting the sample with the reagent
...Envelope, packet or sleeve (e.g., for fecal occult sample, etc.)
...Lancet (e.g., for finger prick, etc.)
...Swab
...Device using capillary action
...Device having frangible compartment
...Device having tortuous path
...Including centrifuge
...Including means for facilitating reaction of a gaseous fluid
...Including channel, valve or chamber
...Wiping means to acquire solid test substance
...Acquisition of liquid sample
...Having reagent in absorbent or bibulous substrate
...Plural layers
...Filtering
...Support layer
...Having coated reagent
...Plural layers
...Filtering layer
...Spreading layer
...Support layer
...Test package or kit
...Automatic analytical monitor and control of industrial process
...Sample mechanical transport means in or for automated analytical system
...Means is turntable (circular)
...Means is conveyor and rack
...Means is moving tape or band
...With specific analytical program control means
...Means for analyzing liquid or solid sample
...Sorption testing
...Liquid chromatography
...With radioactive material
...Including centrifuge
...With coagulometer for agglutination, clotting, or prothrombin, or for particle (e.g., cell, etc.) counting, or volume or characteristics determination
...Dairy tester
...Including titrator
...Conductimetric type
...With integrating or differentiating means
...Including means for pyrolysis, combustion, or oxidation
...Biological, chemical, or total oxygen demand (i.e., BOD, COD, TOD)
...And means directly analyzing evolved gas
...Automated system with sample fluid pressure transport means
...And means segmenting fluid material
...Measuring electrical property
...Resistance or conductivity
...Ion selective electrode
...Dissolved gas
...Measuring optical property by using ultraviolet, infrared, or visible light
...Optode or optrode
...Fluorescence
...Fluorescence
...Absorbance or transmittance
...Waveguides
...Measuring temperature
...Measuring pressure
...Means for analyzing gas sample
...Breath tester
...Based on color change
...Including means reacting gas with color indicator
...Strip indicator
...Including means for adsorbing or absorbing gas into or onto liquid or solid media
...Gas chromatography
...With conductimetric detector
...With photometric detector
...With volumetric detector
93..Including means dividing sample stream into plural parallel segments having diverse treating means and the analytical result compared or combined
94..Combustible gas detector
95...With thermoelectric detector
96.....Wheatstone bridge
97......With specific coating on bridge element
98.....Analysis based on electrical measurement
500..Miscellaneous laboratory apparatus and elements, per se
501..Volumetric fluid transfer means, e.g., pipette, pipettor, etc.
502...Micro-fluidic device
503.....Plate design or structure
504.....Liquid moving means
505.....Pump
506.....Centrifugal force
507.....Capillary action
508.....Spray tip
509...Automated system
510.....Including washing means
511.....Including tip attachment or removal
512...Including seal penetration means
513...Including filter
514...Mixing of diverse substances within pipette
515...Sequential multidispensing from a single tip
516...Variable volume
517.....Including liquid level sensor
518.....Electrically operated
519...Interaction of dispensing tip with surface upon which fluid is dispensed
520...Drawing of liquid into pipette by capillary action
521...Dispensing means
522.....Pressure
523.....Gravity
524.....Tip
525.....Removable
526.....Including storage rack therefore
527...Including means for separating a constituent (e.g., extraction, etc.)
528...Evaporator
529...Operated at ambient temperature
530...Heated
531...Condenser
532...Cooling means
533...Gravity or centrifuge separation
534...Filter
535...Porous media
536...Tissue processing device
537...Valve
538...Including connector
539...With multiple discrete settings
540...Stator and rotor, petcock/stopcock, or slider
541...Check
542...Ball or seat
543...Gas
544...Connector
545...Terminal end threaded or tapered
546...For needle, syringe, or capillary tube
547...Container
548...Used with centrifuge equipment
549...Tube shaped vessel
550...Including closure or sealing mechanism
551...Plate, sheet, dish or tray
552...Including a plurality of wells or receptacles
553....Microtitration plate
554...Cartridge, cassette or cuvette
555...Bag type containers
556...Flask, bottle or beaker
557...Cup or crucible
558...Vial or ampoule
559...Including multiple internal compartments or baffles
560...Holder
561...For sample or specimen container
562...For tube
563...For slide
564...For burette, pipette, or pipette tip
565...Housing
566...Support
567...Hood
568...Stopper, cover, plug, or seal
569...Covering multiple containers or wells
CONTROL ELEMENT RESPONSIVE TO A SENSED OPERATING CONDITION
106. Responsive to liquid level
107. Control element directly mechanically linked to separate sensor
108. Control element responds proportionally to a variable signal from a sensor
109. Controls heat transfer
110. Controls flow rate of a material to or from a contact zone
111. Material is an input to contact zone
112. Control element is fluid pressure sensitive
113. Pressure-relief valve (e.g., pop-off valve) or check valve
114. Control element is a binary responsive valve
115. Valve diverts flow from a contact zone
116. Sensed condition is operating time and control is operation sequencer

WITH SAFETY FEATURE
117. Preventing opening of closure of pressurized apparatus at unsafe pressure

WITH INDICATING, SIGNALLING, RECORDING, SAMPLING, OR INSPECTION MEANS

FOR DEODORIZING OF, OR CHEMICAL PURIFICATION OF, OR GENERATION OF, LIFE-SUSTAINING ENVIRONMENTAL GAS
121. With means exposing gas to electromagnetic wave energy or corpuscular radiation
122. Including solid, extended surface, fluid contact reaction means (e.g., Raschig rings, particulate or monolithic catalyst, etc.)
123. Including means adding material into environmental gas
124. And mechanical means creating forced draft at addition site
125. With material-heating means
126. Material is combusted

SHOCK OR SOUND WAVE
128. Including supersonic or ultrasonic energy generation means

CHEMICAL REACTOR
129.1 Soap making
130. Bench scale
131. Organic polymerization
132. Closed loop
133. Generating foamed plastic
134. Including plural sequential reaction stages
135. Including reactant agitating means in reaction chamber
136. And means rotatably mounting reaction chamber
137. Horizontal reaction chamber with screw or worm agitator
138. With heat exchanger for reaction chamber or reactants located therein
139. Fluidized bed
140. With liquid present
141. Plural reaction beds
142. Sequentially arranged
143. Including specific wind box or particulate matter support grid
144. Including means to strip reaction mass from, or to regenerate, the particulate matter (including fluidized bed regenerators, per se)
145. And means providing flow of particulate matter into or out of reaction chamber
146. With heat exchange means affecting reaction chamber or reactants located therein
147. And means mechanically separating and removing particulate bed material from fluid effluent
148. Ammonia synthesizer
149. With means simultaneously carrying out conjugated reactions within single reactor
150. Pigment or carbon black producer
151. With means injecting quench stream into reaction chamber downstream of reaction site
152. With particulate product collecting surface and means mechanically removing product therefrom
153 ...Moving collecting surface
154 ....Rotary collecting surface
155 .....Disk or plate
156 ..With plural sequential reaction
157 ...zones or chambers
158 ..With movably or removably
159 mounted plug means for
160 converting reactor from (N) to
161 (N+1) reaction stages
162 ..Vapor phase reaction type
163 .For radioactive reactant or
164 product
165 .Inorganic sulfur acid or
166 anhydride producing type
167 ..Acid is final product
168 .Inorganic hydrator
169 .Explosives synthesizer
170 .Solid reactant type (i.e.,
171 absence of fluid reactants)
172 ..Including ignition means for
173 reactant
174 ...Electrically actuated
175 ..Including reactor cooling means
176 surrounding reactor
177 ..Waste gas purifier
178 ..Including means providing
179 sequential purification stages
180 ...Plural chemical reaction
181 stages
182 ....Solid, extended surface,
183 fluid contact type
184 ....And means downstream of a
185 stage for injecting a reactant
186 into waste gas for
187 interreaction in subsequent
188 stage
189 ..With heat exchanger for
190 reaction chamber or reactants
191 located therein
192 ...Electrical type
193 ...Regenerative heat sink
194 ..Including waste gas flow
195 distributor upstream of
196 reaction site and within
197 reaction chamber modifying
198 velocity profile of gas
199 ..Including solid, extended
200 surface, fluid contact
201 reaction means; e.g., inert
202 Raschig rings, particulate
203 absorbent, particulate or
204 monolithic catalyst, etc.
205 ...And contact regenerating means
206 or means for cleaning an
207 internal surface of the
208 reaction chamber
209 ...Fixed bed with resilient or
210 differential thermal expansion
211 compensating bed support means
212 ...Unitary (i.e., nonparticulate)
213 contact bed (e.g., monolithic
214 catalyst bed, etc.)
215 ...Fixed annularly shaped bed of
216 contact material and means
217 directing gas therethrough
218 substantially perpendicular to
219 longitudinal axis of bed
220 ...Including means injecting
221 combustion fuel into reaction
222 chamber in direct contact with
223 waste gas
224 ...And means mixing combustion
225 fuel with waste gas upstream
226 of reaction site
227 ...For chemically destroying or
228 disintegrating solid waste,
229 other than burning alone
230 ...For chemical recovery of
231 chemicals from waste paper
232 making liquor
233 ...With means applying
234 electromagnetic wave energy or
235 corpuscular radiation to
236 reactants for initiating or
237 perfecting chemical reaction
238 ...Magnetic
239 ...Object protection
240 ...With electrical discharge
241 ...Electrostatic field or
electrical discharge
242 ...Treating surface of solid
243 substrate
244 ...Surface is metal
245 ...Ozonizers
246 ...With preparatory or product-
treating means
247 ...With drying means
248 ...With filtering or particle
removal means
249 ...With cooling, compression,
condensation, or liquefying
means
250 ...With subsequent use means
251 ...With electrode moving means
252 ...With fluent reactant flow
control means
186.15 ....With current control or special electrical supply means
186.16 .....With pulse generating means
186.18 ....Cylindrical electrode
186.19 .....With heating or cooling means
186.2 ....With heating or cooling means
186.21 ...Arc or spark discharge means
186.22 ....With electrode or reaction space heating or cooling means
186.23 ....With preparatory or product-treating means
186.24 .....With nitrogen fixation means
186.25 .....With current control means
186.26 ....With cooling or pressurizing means
186.27 .....With RF input means
186.28 ....With ultraviolet radiation generating means
186.3 ....With ultraviolet radiation generating means
187 .Combined
600 .Including plural reaction stages
601 ..Including plural parallel reaction stages with each stage in the form of a plate
602 ...Plate-type laminated reactor
603 ..Microscale reactor
604 ..With gas contact means for degassing or agitating (e.g., sparging, etc.)
605 ...With draft tube
606 ...With multiphase mixing means
607 ..With distributor or collection tray
608 ...With separation or purification means (e.g., rectification, evaporation, ion exchanger, extraction, settler, absorption, recrystallization, etc.)
609 ...Stripper tower
610 ...Distillation means (e.g., retort, etc.)
611 ...Scrubbing
612 ...Absorption
613 ...Cyclone separator
614 ...Condenser
615 ....Condenser downstream of a heat exchanging means
616 ...Filtering means
617 ...Membrane separation (e.g., palladium membrane hydrogen purifier, etc.)
618 ...Including product separation or purification means
619 ..Combined with contact material regenerating means (e.g., regenerating catalyst, etc.)
620 ..Combined with recycling means (e.g., recycling products, reactants, etc.)
621 ...Including reaction heat recovery or recycling
622 ...Including external recycle loop
623 ..Including a boiler
624 ..Including a mechanical means for transportation of material (e.g., conveyor, turntable, truck, etc.)
625 ...Including reformer reactor
626 ...Including water gas shift reaction
627 ...Combined with selective or preferential oxidation reactor
628 ...Autothermal
629 ...Steam reformer
630 ..Discrete sequential reaction stages
631 ...Plural solid, extended surface, fluid contact reaction stages (e.g., inert Raschig rings, particulate sorbent, particulate or monolithic catalyst, etc.)
632 ....With down-flow fixed bed
633 ....Including a unitary, monolithic catalyst bed
634 ....With metal catalyst (e.g., metal oxide, etc.)
635 ....Including random inert packing (e.g., Raschig rings, balls, saddle rings, etc.)
636 ....At least one reaction stage formed of a fixed, annularly shaped bed of contact material
637 .....With means for directing reaction stream therethrough substantially perpendicular to the longitudinal axis of the bed
638 ...Superimposed reaction stages in single reaction chamber
639 ...Wherein at least one reaction stage is upstream or downstream of parallel stages (e.g., AA-B, etc.)
640 ...With parallel repeat of a sequence of reaction stages (e.g., AB-AB, etc.)

641 ...With each stage in the form of a reaction tube

642 ...Wherein the reaction stages are the same

643 ...Including thermal combustion means

644 ...Reaction stages located within single reaction chamber

645 ....With baffle (i.e., deflector plate)

646 ....With heating or cooling means

647 ....And means downstream of a stage for internally injecting a reactant into a reaction stream for reaction in a subsequent stage, or injecting an internal quench stream into a reaction stream passing between stages

648 ....Means within reaction chamber for redistributing reaction stream as it passes between adjacent stages

649 ...With the provision of heating or cooling means

650 ...Including plural parallel reaction stages with each stage in the form of a reaction tube

651 ...Tubular stages in a single reaction chamber

652 ....Reaction tubes filled with catalyst particles

653 ....Reaction tubes containing structured catalyst

654 ....Reaction tubes having catalyst coating

655 ....Individual supply of reactants for each reaction tube

656 ....With a solid reactant

657 ....Operating at positive pressure

658 ....With tube plate (e.g., supporting plate)

659 ....With heating or cooling means

198 ...Including heat exchanger for reaction chamber or reactants located therein

199 ...Electrical type

200 ...Indirect heat-exchange tube within reaction chamber with a nonreactant heat-exchange fluid passing therethrough

201 ...Heat-exchange jacket surrounding reaction chamber

202 ...Including fluid-transfer means connecting chamber to heat-exchange jacket

203 ...Means associated with jacket providing combustion gas as heat-exchange medium

204 ...Including baffle or stirring means disposed within jacket or chamber, the baffle means within chamber connected directly to wall thereof

205 ...Regenerative heat sink

206 ...Means injecting internal quench stream into reaction stream downstream of reaction stage

207 ...Apparatus operates at positive pressure

208 ...Including means rotating reaction chamber during use

209 ...And means wiping or scraping interior surface of reaction chamber

210 ...Including solid, extended surface, fluid contact reaction means; e.g., inert Raschig rings, particulate absorbent, particulate or monolithic catalyst, etc.

211 ...With means removing and recovering product from extended surface contact material

212 ...Particulate contact material type and means providing flow of particulate material into or out of reaction chamber with reactants or products

213 ...Transfer line type reaction chamber

214 ...And internal mixing means

215 ...Compact bed of particulate, fluid contact material and means providing gravity flow of material within bed

216 ...And means upstream of extended surface, fluid contact means removing particulate impurities from reactant stream

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218. Fixed annularly shaped bed of contact material and means directing reactant therethrough substantially perpendicular to longitudinal axis of bed

219. And means loading contact material into, or unloading contact material from, reactor or means providing internal contact material reservoir

220. And reactant flow distributor upstream of contact means and within reaction chamber modifying velocity profile of reactant flow

221. Fixed contact bed type with resilient or differential thermal expansion compensating bed support means

222. Unitary (i.e., nonparticulate) contact bed, (e.g., monolithic catalyst bed, etc.)

223. With contact material regenerating means, per se, or combined with reactor

224. Including internal mixing or stirring means

225. Mechanical type stirring means

226. ... In positive pressure reactor

227. ... Including a draft tube for internal recirculation

228. Including flow directing baffle attached directly to reaction chamber wall

229. Longitudinally extending spiral stirring means

230. Thermosyphon or differential density mixing means; e.g., means internally recycling reaction mass via differential density pumping, etc.

231. Gas sparger type mixing means submerged in liquid reactant

232. Including solid reactant and means charging solids into, or discharging solids from, reaction chamber

233. Having both charge and discharge means along with means conveying solids therebetween located within reaction chamber

234. Including external recycle loop

235. And means heating or cooling loop or reaction mass located therein

236. Including means separating reaction chamber into plural reactant-containing compartments and means moving reactant therebetween

237. Movably mounted container-type separating means and means moving same

238. Solid reactant containing perforated or porous container-type separating means

239. Reaction chamber includes at least one perforated, porous, or semipermeable wall and is adapted for holding solid reactant

240. Including specific material of construction

241. Reactor liner

242. Positive pressure type

PHYSICAL TYPE APPARATUS

244. Including serially disposed vaporizing heating means (sublimer) and solid material deposition means maintained at a temperature lower than said heating means (condenser)

245. Crystallizer

250. Crucible-free zone refiner

251. Including means separating and conveying crystals to a melting zone

252. Hydraulic classifier with crystallizer

253. Including feed compartment for introducing nutrient

254. Movable crystallizer or scraping means

255. Means separating or dissolving a material constituent

256. Liquid-liquid contact means

257. ... Including pulsator, adjustable plates, or plural inlets; e.g., spraying, etc.

258. Including rotating chamber or rotating member within chamber; e.g., mixer-settler, etc.

259. Having rotating member within chamber
260 ...Including heating and cooling means
261 ...Liquid-solid contact means
262 ...Sulfur extraction
263 ...Including monolithic nonporous body of solute
264 ...Including means restricting solvent contact to one end of body of solute
265 ...Buoyant holder
266 ...Manual or mountable holder; e.g., soap holder, etc.
267 ...Including means to remove solids from a filter
268 ...Conveyor support for solid material during contact; e.g., bucket, etc.
269 ...Including rotating member
270 ...Member is container
271 ...Including internal rotating member
272 ...Partitions divide container
273 ...Member conveys material into and out of container; e.g., screw propeller, etc.
274 ...Including perforated member which is nonlinear or inclined with respect to the major axis of container
275 ...Including parallel perforated members perpendicular to, or parallel to, major axis of container
276 ...Side wall of holder perforated
277 ...Perforations of holder form inlet for solvent
278 ...Including plural orifice inlet, or deflector adjacent inlet for solvent flow
279 ...Having inlet submerged within body of a solid solute
280 ...Solvent vapor condenser
281 ...Means recirculating solvent
282 ...Including bypass
283 ...Including dip tube for inlet or outlet of fluid solvent
284 ...Internal heater; e.g., steam coil, etc.
285 ...And heating means
286 ...Including mechanical comminuting or conveying means
287 ...Within treating vessel
288 ...Including means removing vapor from treated material

289 ...And direct contact heating fluid means within separating or dissolving chamber vessel
290 ...And indirect contact heating fluid means in separating or dissolving chamber
291 .Combined
292 .Apparatus for treating solid article or material with fluid chemical
293 ...Fluid having simultaneous diverse function
294 ...Including flexible or collapsible treating chamber
295 ...Including pressure treating chamber (above ambient)
296 ...Fluid pressure maintains closure or seal
297 ...And rack, support or handling means
298 ...And vaporizer; e.g., boiler, etc.
299 ...Constituting treating chamber
300 ...Including rack, support or handling means
301 ...Apparatus closure operates means immersing article or material in liquid chemical
302 ...For treating container or covers therefor
303 ...Container is inverted
304 ...Including endless conveyor
305 ...Including gas generating means
306 ...Including means for adding a material to a gas
307 ...Heat treating vessel with heating means
308 ...Including multiple stages
309 ...Including comminuting, kneading, or surface-wiping means interior or vessel

ELEMENTS OR ADJUNCTS
310 .Bed support means (e.g., support grid or plate for supporting particulate bed of contact material, etc.)
311 .Tube element containing extended surface contact reaction means (e.g., a tube internally coated or packed with a catalyst, etc.)
CROSS-REFERENCE ART COLLECTIONS

900 DECREASING POLLUTION OR ENVIRONMENTAL IMPACT
901 POLYMER DISSOLVER
902 SODIUM CHLORIDE AND POTASSIUM CHLORIDE DISSOLVER
903 RADIOACTIVE MATERIAL APPARATUS
904 NITROGEN FIXATION MEANS
905 MISCELLANEOUS LIQUID STERILIZATION MEANS
906 PLASMA OR ION GENERATION MEANS
907 CORONA OR GLOW DISCHARGE MEANS
908 CRUCIBLES [B01L 3/04]
909 CRYSTALLIZING DISHES [B01L 3/06]
910 FLASKS [B01L 3/08]
911 WASH BOTTLES [B01L 3/10]
912 GAS JARS OR CYLINDERS [B01L 3/12]
913 TEST TUBES [B01L 3/14]
914 Specific test tube, per se [B01L 3/14B]
915 With identification means, e.g., coded [B01L 3/14B2]
916 Closing or opening means, e.g., corks, bungs [B01L 3/14C]
917 With identification means, e.g., coded [B01L3/14C2]
918 Specially adapted for centrifugation [B01L 3/14D]
919 BURETTES; PIPETTES [B01L 3/02]
920 Burettes, i.e., for withdrawing and redistributing liquids through different conduits [B01L 3/02B]
921 Plunger type [B01L 3/02B2]
922 Pipettes, i.e., with only one conduit for withdrawing and redistributing liquids [B01L 3/02C]
923 Plunger pump type [B01L 3/02C3]
924 Capillary pipettes, i.e., having a very small bore [B01L 3/02C3C]
925 Having mechanical stroke length setting means, e.g., movable stops [B01L 3/02C3D]
926 Details of motor drive means [B01L 3/02C3M]
927 Having several coaxial pistons [B01L 3/02C3P]
928 Repeating pipettes, i.e. for dispensing multiple doses from a single charge [B01L 3/02C3R]
929 Supports for pipettes [B01L 3/02C3S]
930 Drop counters or drop formers [B01L 3/02D]
931 Interchangeable or disposable dispensing tips [B01L 3/02E]
932 Cooperating with positive ejection means [B01L 3/02E2]
933 Means for supplying or disposing of tips, e.g., racks or cassettes [B01L 3/02E4]
934 Mounted within a receptacle [B01L 3/02F]
935 FLUID TRANSFERRING GLASSWARE [B01L 3/00B]
936 Tubes; conduits [B01L 3/00B2]
937 Joints; seals [B01L 3/00B4]
938 Stopcocks; valves [B01L 3/00B6]
939 CONTAINERS FOR THE PURPOSE OF RETAINING A MATERIAL TO BE ANALYZED [B01L 3/00C]
940 Made of a rigid material [B01L 3/00C2]
941 With identification means, e.g., coded [B01L 3/00C2B]
942 For multiple samples, e.g., micro-titration plate [B01L 3/00C2D]
943 Specially adapted for heating or cooling samples [B01L 3/00C2D2]
944 Made of a flexible material [B01L 3/00C4]
945 With identification means, e.g., coded [B01L 3/00C4B]
946 With fluid transport, e.g., multi-compartment structure [B01L 3/00C6]
947 Using capillary action, including fluid transfer through absorbent matrix [B01L 3/00C6C]
948 For multiple samples, e.g., multi-well filtration [B01L 3/00C6D]

FOREIGN ART COLLECTIONS

FOR 000 CLASS-RELATED FOREIGN DOCUMENTS ANALYZER, STRUCTURED INDICATOR, OR MANIPULATIVE LABORATORY DEVICE
FOR 100 . Structured visual or optical indicator, per se (422/55)
FOR 101 . Having reagent in absorbent or bibulous substrate (422/56)
FOR 102 . Having coated reagent (422/57)
FOR 103 . In holder or container having special form (422/58)
FOR 104 . Column (422/59)
FOR 105 . Having plural-layered material (422/60)
FOR 106 . Test package or kit (422/61)
FOR 107 . Miscellaneous laboratory apparatus and elements, per se (422/99)
FOR 108 . Pipette or other volumetric fluid transfer means (422/100)
FOR 109 . Including means for separating a constituent; e.g., filter, condenser, extractor, etc. (422/101)
FOR 110 . Container (422/102)
FOR 111 . Valve or connector structure (422/103)
FOR 112 . Holder, support, housing, or hood (422/104)

CHEMICAL REACTOR
FOR 113 . Including plural reaction stages (422/188)
FOR 114 . And means providing discrete sequential reaction stages; e.g., train, etc. (422/189)
FOR 115 . Plural solid, extended surface, fluid contact reaction stages each containing; e.g., inert Raschig rings, particulate sorbent, particulate or monolithic catalyst, etc. (422/190)
FOR 116 . Superimposed reaction stages in single reaction chamber (422/191)
FOR 117 . At least one reaction stage formed of fixed, annularly shaped bed of contact material and means directing reaction stream therethrough substantially perpendicular to longitudinal axis of bed (422/192)
FOR 118 . Reaction stages located within single reaction chamber (422/193)
CLASS 422 CHEMICAL APPARATUS AND PROCESS DISINFECTING, DEODORIZING, PRESERVING, OR STERILIZING