

**CPC****COOPERATIVE PATENT CLASSIFICATION****B03D**

**FLOTATION; DIFFERENTIAL SEDIMENTATION** (sedimentation in general [B01D 21/00](#); in combination with other separation of solids [B03B](#); sink-float separation [B03B 5/28](#); detergents, soaps [C11D](#))

**WARNING**

The following groups are not complete:

[B03D 1/023](#), see also [B03D 1/02](#)  
[B03D 1/025](#), see also [B03D 1/02](#)  
[B03D 1/026](#), see also [B03D 1/02](#)  
[B03D 1/028](#), see also [B03D 1/02](#)  
[B03D 1/082](#), see also [B03D 1/08](#)  
[B03D 1/085](#), see also [B03D 1/08](#)  
[B03D 1/087](#), see also [B03D 1/08](#)  
[B03D 1/1406](#), see also [B03D 1/14](#)  
[B03D 1/1443](#), see also [B03D 1/14](#)  
[B03D 1/145](#), see also [B03D 1/14](#)  
[B03D 1/1456](#), see also [B03D 1/14](#)  
[B03D 1/1462](#), see also [B03D 1/14](#)  
[B03D 1/1468](#), see also [B03D 1/14](#)  
[B03D 1/1475](#), see also [B03D 1/14](#)  
[B03D 1/1487](#), see also [B03D 1/14](#)  
[B03D 1/1493](#), see also [B03D 1/14](#)  
[B03D 1/242](#), see also [B03D 1/24](#)  
[B03D 1/247](#), see also [B03D 1/24](#) ]

**B03D 1/00**

**Flotation** (conditioning for flotation, general arrangement of plan [B03B](#))

**NOTE**

In groups [B03D 1/001](#) to [B03D 1/018](#), in the absence of an indication to the contrary, classification is made in the last appropriate place.

- [B03D 1/001](#) . Flotation agents (conditioners [B03B 1/00](#))
- [B03D 1/002](#) . . Inorganic compounds
- [B03D 1/004](#) . . Organic compounds
- [B03D 1/0043](#) . . . {modified so as to contain a polyether group}
- [B03D 1/0046](#) . . . {containing silicon}
- [B03D 1/006](#) . . . Hydrocarbons
- [B03D 1/008](#) . . . containing oxygen
- [B03D 1/01](#) . . . containing nitrogen
- [B03D 1/011](#) . . . . {Quaternary ammonium compounds}
- [B03D 1/012](#) . . . containing sulfur
- [B03D 1/014](#) . . . containing phosphorus

- B03D 1/016 . . . Macromolecular compounds
- B03D 1/018 . . Mixtures of inorganic and organic compounds
- B03D 1/02 . Froth-flotation processes
- B03D 1/021 . . {for treatment of phosphate ores}
- B03D 1/023 . . {Carrier flotation; Flotation of a carrier material to which the target material attaches}
- B03D 1/025 . . {adapted for the flotation of fines}
- B03D 1/026 . . {Using an immiscible liquid in place of a gas for flotation}
- B03D 1/028 . . {Control and monitoring of flotation processes; computer models therefor}
- B03D 1/04 . . by varying ambient atmospheric pressure
- B03D 1/06 . . differential
- B03D 1/08 . Subsequent treatment of concentrated product ([froth dispersion B01D 19/02](#))
- B03D 1/082 . . {of the froth product, e.g. washing}
- B03D 1/085 . . {of the feed, e.g. conditioning, de-sliming}
- B03D 1/087 . . {of the sediment, e.g. regrinding}
- B03D 1/10 . . Removing adhering liquid from separated materials ([processes or devices capable of general use B01D](#))
- B03D 1/12 . Agent recovery
- B03D 1/14 . Flotation machines ([devices for feeding measured quantities of reagents B01J 4/02](#); [flotation apparatus for enzymology or microbiology C12M 1/09](#))
- B03D 1/1406 . . {with special arrangement of a plurality of flotation cells, e.g. positioning a flotation cell inside another}
- B03D 1/1412 . . {with baffles, e.g. at the wall for redirecting settling solids}
- B03D 1/1418 . . {using centrifugal forces}
- B03D 1/1425 . . . {air-sparged hydrocyclones}
- B03D 1/1431 . . {Dissolved air flotation machines}
- B03D 1/1437 . . {using electroflotation ([waste water treatment using electroflotation C02F 1/465](#))}
- B03D 1/1443 . . {Feed or discharge mechanisms for flotation tanks}
- B03D 1/145 . . . {Feed mechanisms for reagents ([devices for feeding measured quantities of reagents B01J 4/02](#))}
- B03D 1/1456 . . . {Feed mechanisms for the slurry}
- B03D 1/1462 . . . {Discharge mechanisms for the froth}
- B03D 1/1468 . . . {Discharge mechanisms for the sediments}
- B03D 1/1475 . . . {Flotation tanks having means for discharging the pulp, e.g. as a bleed stream}
- B03D 1/1481 . . {with a plurality of parallel plates}
- B03D 1/1487 . . {Means for cleaning or maintenance}
- B03D 1/1493 . . {with means for establishing a specified flow pattern}
- B03D 1/16 . . with impellers; Subaeration machines ([\(mixing gases or vapours with liquids B01F 3/04\)](#))
- B03D 1/18 . . . without air supply

- B03D 1/20 . . . with internal air pumps
- B03D 1/22 . . . with external blowers
- B03D 1/24 . . Pneumatic {(mixing gases or vapours with liquids [B01F 3/04](#))}
- B03D 1/242 . . . {Nozzles for injecting gas into the flotation tank}
- B03D 1/245 . . . {Injecting gas through perforated or porous area}
- B03D 1/247 . . . {Mixing gas and slurry in a device separate from the flotation tank, i.e. reactor-separator type}
- B03D 1/26 . . . Air lift machines

**B03D 3/00****Differential sedimentation**

- B03D 3/02 . Coagulation
- B03D 3/04 . . assisted by vibrations
- B03D 3/06 . Flocculation

**B03D 2201/00****Specified effects produced by the flotation agents (use of substances as emulsifying, wetting, dispersing or foam-producing agents [B01F 17/00](#))**

- B03D 2201/002 . Coagulants and Flocculants
- B03D 2201/005 . Dispersants
- B03D 2201/007 . Modifying reagents for adjusting pH or conductivity
- B03D 2201/02 . Collectors
- B03D 2201/04 . Frothers
- B03D 2201/06 . Depressants

**B03D 2203/00****Specified materials treated by the flotation agents; specified applications (paper pulp processing [D21F 1/70](#), de-inking of paper pulp [D21B 1/325](#))**

- B03D 2203/001 . Agricultural products, food, biogas, algae
- B03D 2203/003 . Biotechnological applications, e.g. separation or purification of enzymes, hormones, vitamins, viruses
- B03D 2203/005 . Fine and commodity chemicals
- B03D 2203/006 . Oil well fluids, oil sands, bitumen
- B03D 2203/008 . Water purification, e.g. for process water recycling ([waste water treatment C02F 1/24](#))
- B03D 2203/02 . Ores
- B03D 2203/025 . . Precious metal ores
- B03D 2203/04 . . Non-sulfide ores
- B03D 2203/06 . . . Phosphate ores
- B03D 2203/08 . . . Coal ores, fly ash or soot
- B03D 2203/10 . . . Potassium ores