

**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 1/02 C](#), see also [B03D 1/02B03D 1/02 F](#), see also [B03D 1/02B03D 1/02 L](#), see also [B03D 1/02B03D 1/02 R](#), see also [B03D 1/02B03D 1/08 D](#), see also [B03D 1/08B03D 1/08 F](#), see also [B03D 1/08B03D 1/08 T](#), see also [B03D 1/08B03D 1/14 A](#), see also [B03D 1/14B03D 1/14 F](#), see also [B03D 1/14B03D 1/145](#) , see also [B03D 1/14B03D 1/1456](#) , see also [B03D 1/14B03D 1/1462](#) , see also [B03D 1/14B03D 1/1468](#) , see also [B03D 1/14B03D 1/1475](#) , see also [B03D 1/14B03D 1/14 M](#), see also [B03D 1/14B03D 1/14 S](#), see also [B03D 1/14B03D 1/24 N](#), see also [B03D 1/24B03D 1/24 R](#), 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
<b>B03D 2201/00</b>	<b>Specified effects produced by the flotation agents ( use of substances as emulsifying, wetting, dispersing or foam-producing agents <a href="#">B01F 17/00</a> )</b>
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
<b>B03D 2203/00</b>	<b>Specified materials treated by the flotation agents; specified applications ( paper pulp processing <a href="#">D21F 1/70</a> , de-inking of paper pulp <a href="#">D21B 1/325</a> )</b>
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 <a href="#">C02F 1/24</a> )
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