

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 1/02 B03D 1/02 F](#), see also [B03D 1/02 B03D 1/02 L](#), see also [B03D 1/02 B03D 1/02 R](#), see also [B03D 1/02 B03D 1/08 D](#), see also [B03D 1/08 B03D 1/08 F](#), see also [B03D 1/08 B03D 1/08 T](#), see also [B03D 1/08 B03D 1/14 A](#), see also [B03D 1/14 B03D 1/14 F](#), 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 1/14 M](#), see also [B03D 1/14 B03D 1/14 S](#), see also [B03D 1/14 B03D 1/24 N](#), see also [B03D 1/24 B03D 1/24 R](#), see also [B03D 1/24](#)]

Guidance heading:**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.

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|-----------------------------|-----------------------------------------------------------------------------------------------------------------|
| 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

Guidance heading:

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

Guidance heading:

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