

# CPC COOPERATIVE PATENT CLASSIFICATION

## B PERFORMING OPERATIONS; TRANSPORTING

(NOTES omitted)

### SEPARATING; MIXING

**B03 SEPARATION OF SOLID MATERIALS USING LIQUIDS OR USING PNEUMATIC TABLES OR JIGS; MAGNETIC OR ELECTROSTATIC SEPARATION OF SOLID MATERIALS FROM SOLID MATERIALS OR FLUIDS; SEPARATION BY HIGH-VOLTAGE ELECTRIC FIELDS** (separating isotopes [B01D 59/00](#); crushing or disintegrating [B02C](#); centrifuges or vortex apparatus for carrying out physical processes [B04](#))

**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](#))

#### WARNINGS

1. 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](#)

2. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

[B03D 101/00-B03D 103/10](#) covered by

3. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**1/00 Flotation** (conditioning for flotation, general arrangement of plan [B03B](#))

1/001 . Flotation agents (conditioners [B03B 1/00](#))

#### NOTES

1. In this group, the last place priority rule is applied, i.e. at each hierarchical level, in the absence of an indication to the contrary, classification is made in the last appropriate place.

2. In this group, it is desirable to add the appropriate indexing code(s) from each of groups [B03D 2201/00](#) or [B03D 2203/00](#).

1/002 . . Inorganic compounds  
 1/004 . . Organic compounds  
 1/0043 . . . {modified so as to contain a polyether group}  
 1/0046 . . . {containing silicon}  
 1/006 . . . Hydrocarbons  
 1/008 . . . containing oxygen  
 1/01 . . . containing nitrogen  
 1/011 . . . . {Quaternary ammonium compounds}

- 1/012 . . . containing sulfur
- 1/014 . . . containing phosphorus
- 1/016 . . . Macromolecular compounds
- 1/018 . . Mixtures of inorganic and organic compounds
- 1/02 . Froth-flotation processes
- 1/021 . . {for treatment of phosphate ores}
- 1/023 . . {Carrier flotation; Flotation of a carrier material to which the target material attaches}
- 1/025 . . {adapted for the flotation of fines}
- 1/026 . . {Using an immiscible liquid in place of a gas for flotation}
- 1/028 . . {Control and monitoring of flotation processes; computer models therefor}
- 1/04 . . by varying ambient atmospheric pressure
- 1/06 . . differential
- 1/08 . Subsequent treatment of concentrated product ([froth dispersion B01D 19/02](#))
- 1/082 . . {of the froth product, e.g. washing}
- 1/085 . . {of the feed, e.g. conditioning, de-sliming}
- 1/087 . . {of the sediment, e.g. regrinding}
- 1/10 . . Removing adhering liquid from separated materials ([processes or devices capable of general use B01D](#))
- 1/12 . Agent recovery
- 1/14 . Flotation machines ([devices for feeding measured quantities of reagents B01J 4/02](#); [flotation apparatus for enzymology or microbiology C12M 1/09](#))
- 1/1406 . . {with special arrangement of a plurality of flotation cells, e.g. positioning a flotation cell inside another}
- 1/1412 . . {with baffles, e.g. at the wall for redirecting settling solids}
- 1/1418 . . {using centrifugal forces}
- 1/1425 . . . {air-sparged hydrocyclones}
- 1/1431 . . {Dissolved air flotation machines}
- 1/1437 . . {using electroflotation ([waste water treatment using electroflotation C02F 1/465](#))}
- 1/1443 . . {Feed or discharge mechanisms for flotation tanks}
- 1/145 . . . {Feed mechanisms for reagents ([devices for feeding measured quantities of reagents B01J 4/02](#))}
- 1/1456 . . . {Feed mechanisms for the slurry}
- 1/1462 . . . {Discharge mechanisms for the froth}
- 1/1468 . . . {Discharge mechanisms for the sediments}
- 1/1475 . . . {Flotation tanks having means for discharging the pulp, e.g. as a bleed stream}
- 1/1481 . . {with a plurality of parallel plates}
- 1/1487 . . {Means for cleaning or maintenance}
- 1/1493 . . {with means for establishing a specified flow pattern}
- 1/16 . . with impellers; Subaeration machines ([\(mixing gases or vapours with liquids B01F 3/04\)](#))
- 1/18 . . . without air supply
- 1/20 . . . with internal air pumps
- 1/22 . . . with external blowers
- 1/24 . . Pneumatic ([\(mixing gases or vapours with liquids B01F 3/04\)](#))
- 1/242 . . . {Nozzles for injecting gas into the flotation tank}
- 1/245 . . . {Injecting gas through perforated or porous area}
- 1/247 . . . {Mixing gas and slurry in a device separate from the flotation tank, i.e. reactor-separator type}
- 1/26 . . . Air lift machines
- 3/00 Differential sedimentation**
- 3/02 . Coagulation
- 3/04 . . assisted by vibrations
- 3/06 . Flocculation
- 2201/00 Specified effects produced by the flotation agents (use of substances as emulsifying, wetting, dispersing or foam-producing agents B01F 17/00)**
- 2201/002 . Coagulants and Flocculants
- 2201/005 . Dispersants
- 2201/007 . Modifying reagents for adjusting pH or conductivity
- 2201/02 . Collectors
- 2201/04 . Frothers
- 2201/06 . Depressants
- 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)**
- 2203/001 . Agricultural products, food, biogas, algae
- 2203/003 . Biotechnological applications, e.g. separation or purification of enzymes, hormones, vitamins, viruses
- 2203/005 . Fine and commodity chemicals
- 2203/006 . Oil well fluids, oil sands, bitumen
- 2203/008 . Water purification, e.g. for process water recycling ([waste water treatment C02F 1/24](#))
- 2203/02 . Ores
- 2203/025 . . Precious metal ores
- 2203/04 . . Non-sulfide ores
- 2203/06 . . . Phosphate ores
- 2203/08 . . . Coal ores, fly ash or soot
- 2203/10 . . . Potassium ores