B03C

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

B03C MAGNETIC OR ELECTROSTATIC SEPARATION OF SOLID MATERIALS FROM SOLID MATERIALS OR FLUIDS; SEPARATION BY HIGH-VOLTAGE ELECTRIC FIELDS (filters making use of electricity or magnetism B01D 35/06; separating isotopes B01D 59/00; combinations of magnetic or electrostatic separation with separation of solids by other means B03B, B07B; separating sheets from piles B65H 3/00; magnets or magnet coils per se H01F)

WARNING

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 Magnetic separation
1/002 . . [High gradient magnetic separation]
1/005 . . Pretreatment specially adapted for magnetic separation
1/01 . . by addition of magnetic adjuvants
1/015 . . by chemical treatment imparting magnetic properties to the material to be separated, e.g. roasting, reduction, oxidation
1/02 . . acting directly on the substance being separated
1/021 . . Separation using Meissner effect, i.e. deflection of superconductive particles in a magnetic field
1/023 . . Separation using Lorentz force, i.e. deflection of electrically charged particles in a magnetic field
1/025 . . High gradient magnetic separators
1/027 . . with reciprocating canisters
1/029 . . with circulating matrix or matrix elements (matrix elements B03C 1/034)
1/03 . . . . rotating, e.g. of the carousel type
1/031 . . . . Component parts; Auxiliary operations
1/032 . . . . Matrix cleaning systems
1/033 . . . . characterised by the magnetic circuit
1/0332 . . . . [using permanent magnets]
1/0335 . . . . [using coils]
1/0337 . . . . {superconductive}
1/034 . . . . characterised by the matrix elements
1/035 . . Open gradient magnetic separators, i.e. separators in which the gap is unobstructed, characterised by the configuration of the gap
1/0355 . . . . using superconductive coils
1/04 . . . with the material carriers in the form of trays or with tables
1/06 . . . with magnets moving during operation
1/08 . . . with non-movable magnets
1/10 . . with cylindrical material carriers (B03C 1/247 takes precedence)
1/12 . . . with magnets moving during operation; with movable pole pieces
1/14 . . . with non-movable magnets
1/145 . . . . [with rotating annular or disc-shaped material carriers]
1/16 . . . with material carriers in the form of belts
1/18 . . . with magnets moving during operation
1/20 . . . . in the form of belts, e.g. cross-belt type
1/22 . . . . with non-movable magnets
1/23 . . . with material carried by oscillating fields; with material carried by travelling fields, e.g. generated by stationary magnetic coils; Eddy-current separators, e.g. sliding ramp
1/24 . . . with material carried by travelling fields
1/247 . . . . obtained by a rotating magnetic drum
1/253 . . . . obtained by a linear motor
1/26 . . . with free falling material (B03C 1/035 takes precedence)
1/28 . . . Magnetic plugs and dipsticks
1/282 . . . {with associated accumulation indicator, e.g. Hall sensor}
1/284 . . . {with associated cleaning means, e.g. retractable non-magnetic sleeve}
1/286 . . . (disposed at the inner circumference of a recipient, e.g. magnetic drain bolt)
1/288 . . . (disposed at the outer circumference of a recipient)
1/30 . . . Combinations with other devices, not otherwise provided for
1/32 . . . acting on the medium containing the substance being separated, e.g. magnetogravimetric-, magnetohydrostatic-, or magnetohydrodynamic separation (sink-float separation using heavy liquids or suspensions B03B 5/30)
Separating dispersed particles from gases or vapour, e.g. air, by electrostatic effect \{use of electrostatic separators in combination with exhausts of machines or internal combustion machines\} \[F01N 3/01(1)\]

3/01 . Pretreatment of the gases prior to electrostatic precipitation

3/011 . Prefiltering; Flow controlling

3/013 . Conditioning by chemical additives, e.g. with $\text{SO}_3$

3/014 . Addition of water; Heat exchange, e.g. by condensation

3/016 . by acoustic or electromagnetic energy, e.g. ultra-violet light

3/017 . Combinations of electrostatic separation with other processes, not otherwise provided for

3/0175 . \{Amassing particles by electric fields, e.g. agglomeration\}

3/019 . Post-treatment of gases

3/02 . Plant or installations having external electricity supply \{electrode constructions\} \[B03C 3/40\]

3/025 . \{Combinations of electrostatic separators, e.g. in parallel or in series, stacked separators, dry-wet separator combinations\}

3/04 . dry type

3/06 . characterised by presence of stationary tube electrodes

3/08 . characterised by presence of stationary flat electrodes arranged with their flat surfaces parallel to the gas stream

3/09 . characterised by presence of stationary flat electrodes arranged with their flat surfaces at right angles to the gas stream

3/10 . characterised by presence of electrodes moving during separating action

3/12 . characterised by separation of ionising and collecting stations

3/14 . characterised by the additional use of mechanical effects, e.g. gravity \[(B03C 3/32 takes precedence)\]

3/145 . . . Inertia

3/15 . . . Centrifugal forces

3/155 . . . Filtration

3/16 . . . wet type

3/28 . Plant or installations without electricity supply, e.g. using electrets

3/30 . in which electrostatic charge is generated by passage of the gases, i.e. tribo-electricity

3/32 . Transportable units, e.g. for cleaning room air \{room air-conditioners having an electrostatic separating stage\} \[F24F\]

3/34 . Constructional details or accessories or operation thereof

3/36 . Controlling flow of gases or vapour

3/361 . . . \{by static mechanical means, e.g. deflector\}

3/363 . . . \{located before the filter\}

3/365 . . . \{located after the filter\}

3/366 . . . \{located in the filter, e.g. special shape of the electrodes\}

3/368 . . . \{by other than static mechanical means, e.g. internal ventilator or recycler\}

3/38 . Particle charging or ionising stations, e.g. using electric discharge, radioactive radiation, flames \{electrode constructions\} \[B03C 3/40; ionising gases\] \[H05H\]

3/383 . . . \{using radiation\}

3/386 . . . \{using flames\}

3/40 . Electrode constructions

3/41 . Ionising-electrodes

3/43 . . . radioactive

3/45 . . . Collecting-electrodes

3/455 . . . \{specially adapted for heat exchange with the gas stream\} \[(B03C 3/53 takes precedence)\]

3/47 . . . flat, e.g. plates, discs, gratings

3/49 . . . tubular \[(B03C 3/45 takes precedence)\]

3/51 . . . Catch- space electrodes, e.g. slotted-box form

3/53 . . . Liquid, or liquid-film, electrodes

3/60 . . . Use of special materials other than liquids

3/62 . . . ceramics

3/64 . . . synthetic resins

3/66 . . . Applications of electricity supply techniques

3/68 . . . Control systems therefor

3/70 . . . insulated in electric separators \[(B03C 3/53 takes precedence)\]

3/72 . . . Emergency control systems

3/74 . . . Cleaning the electrodes

3/743 . . . \{by using friction, e.g. by brushes or sliding elements\}

3/746 . . . \{Electricity supply or control systems therefor\}

3/76 . . . by using a mechanical vibrator, e.g. rapping gear \{by using impact\}

3/761 . . . \{Drive-transmitting devices therefor, e.g. insulated shafts\}

3/763 . . . \{Electricity supply or control systems therefor\}

3/765 . . . \{with electromagnets\}

3/766 . . . \{with pneumatic rappers\}

3/768 . . . \{with free falling masses, e.g. dropped metal balls\}

3/78 . . . by washing

3/80 . . . by gas or solid particle blasting

3/82 . . . Housings

3/84 . . . Protective coatings

3/86 . . . Electrode-carrying means \[(B03C 3/40 takes precedence)\]

3/88 . . . Cleaning-out collected particles

3/885 . . . \{by travelling or oscillating electric fields, e.g. electric field curtains \{electrostatic non-mechanical conveyors in general\} \[B65G 54/02\}\]

5/00 Separating dispersed particles from liquids by electrostatic effect \{flocculation or agglomeration of electric particles induced by electric field\} \[B01D 21/0009; microreactors \[B01J 19/0093\] \{combined with centrifuges \[B04B 5/10\] \{treatment of microorganisms and apparatus therefor \[C12M 1/42, C12N 13/00, C12Q 1/24\] \{analysis of biomaterial by electrical means \[G01N 33/48707\}\}\]

**NOTE**

In this group, the following term is used with the meaning indicated:

- “separating” means dimensional modifications of particle-liquid distributions, e.g. particle immobilisation, caging, translational or rotational motion
Dielectrophoresis, i.e. dielectric particles migrating towards the region of highest field strength (B03C 5/02 takes precedence; electrophoresis B01D 57/02))

Separators

[Non-uniform field separators]

[High-gradient differential dielectric separation, i.e. using a dielectric matrix polarised by an external field]

[Open-gradient differential dielectric separation, i.e. using electrodes of special shapes for non-uniform field creation, e.g. Fluid Integrated Circuit [FIC]]

[Using travelling electric fields, i.e. travelling wave dielectrophoresis [TWD]]

Separating solids from solids by electrostatic effect

(Pretreatment of the solids prior to electrostatic separation)

[Charging without electricity supply, e.g. by tribo-electricity, pyroelectricity]

Separators

[Non-uniform field separators]

[Using travelling or oscillating electric fields]

with material carriers in the form of trays, troughs, or tables

with cylindrical material carriers

with material carriers in the form of belts

with material falling in cascades

with material falling free

Electrostatic separation not provided for in a single preceding main group

Separation by high-voltage electrical fields, not provided for in other groups of this subclass

Details of magnetic or electrostatic separation

Electro-statically separating liquids from liquids

Ionising electrode being a wire

Ionising electrode being a needle

Ionising electrode being a rod

Ionising electrode has multiple serrated ends or parts

Cleaning the device by burning the trapped particles

the gas being moved electro-kinetically

Magnetic separating gases form gases, e.g. oxygen from air

Magnetic separation whereby the particles are suspended in a liquid

Magnetic separation whereby the particles to be separated are in solid form

characterised by the magnetical field, special shape or generation

for measuring or calculating parameters, efficiency, etc.

for use in medical applications

Parts being easily removable for cleaning purposes

for use in or with vehicles

Checking the quality of the result or the well-functioning of the device