

B03B

SEPARATING SOLID MATERIALS USING LIQUIDS OR USING PNEUMATIC TABLES OR JIGS (removing fluids from solids [B01D](#); magnetic or electrostatic separation of solid materials from solid materials or fluids, separation by high voltage electric fields [B03C](#); flotation differential sedimentation [B03D](#); separating by dry methods [B07](#); screening or sifting [B07B](#); by picking [B07C](#); separating peculiar to particular materials and provided for in other single classes, see the relevant classes)

Definition statement

This place covers:

Apparatus for separating or classifying or washing granular powdered or lumpy solid materials of different physical properties like size, shape, specific gravity etc..

Relationships with other classification places

Separation of isotopes of the same chemical element is covered by [B01D 59/00](#) whatever process or apparatus is employed.

Crushing or disintegrating is covered by [B02C](#).

Centrifuges or vortex apparatus for carrying out physical processes is covered by [B04B](#) and [B04C](#).

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Separation in general	B01D
Separation of suspended solid particles from liquids by sedimentation	B01D 21/00
Selective separation of solid materials carried by or dispersed in gas currents, using centrifugal force	B07B 7/08
Recovery of plastics or other constituents of waste material containing plastics; Separating plastics from other materials	B29B 17/02

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Jig	An apparatus for cleaning or separating solid particles (ore, coal etc.) by agitation in a fluid, e.g. water, where the layer or bed of particles are supported on a perforated plate or screen is subjected to an alternating rising and falling (pulsating) flow of the fluid
Vanner	An apparatus for cleaning or separating solid particles (ore, coal etc.) by an inclined belt
Sluice	An apparatus for cleaning or separating solid particles (ore, coal etc.) by an inclined trough with riffles at the bottom to retain the heavy minerals
Strake	An apparatus for cleaning or separating solid particles (ore, coal etc.) by a finely riffled sluice in which fabrics or corrugated rubber forms pockets to trap heavy mineral

Heavy media	Liquids or suspensions of particles in water used for sink-float separation
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B03B 1/00

Conditioning for facilitating separation by altering physical properties of the matter to be treated (pretreatment of ores in general [C22B](#) {; pretreatment prior to magnetic separation [B03C 1/00](#)})

Definition statement

This place covers:

Pre-treatment, like heating, cooling, exposing to radiation, adding additives, varying physical properties, of the material prior to physical separation carried out by methods and devices of this subclass.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Pre-treatment prior to magnetic separation	B03C 1/00
Pre-treatment prior to flotation	B03D
Pre-treatment of ores in general	C22B

B03B 4/00

Separating by pneumatic tables or by pneumatic jigs (sink-float separation using dry heavy media [B03B 5/46](#))

Definition statement

This place covers:

Separating or classifying materials on stationary, swinging, shaking, rotary or belt-like tables and using a continuous or pulsating gas current.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Sink-float separation using dry heavy media	B03B 5/46
Separating solids from solids by subjecting their mixture to gas currents while the mixtures are supported by sieves, screens, or like mechanical elements and material is passing through the sieve, screen or the like	B07B 4/08

B03B 5/00

Washing granular, powdered or lumpy materials; Wet separating (separating by pneumatic tables or by pneumatic jigs [B03B 4/00](#))

Definition statement

This place covers:

Washing in order to separate fine particles esp. organic particles from coarse particles. Apparatus for classifying solids by wet methods.

References**Limiting references**

This place does not cover:

Flotation	B03D
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Separation of suspended solid particles from liquids by sedimentation	B01D 21/00
Dry helical separators	B07B 13/11
Sewerage structures; Devices for separating liquid or solid substances from sewage, e.g. sand or sludge traps, rakes or grates	E03F 5/14
Investigating or analysing materials by separation into components; Field flow fractionation	G01N 30/0005

B03B 5/32

using centrifugal force (centrifuges [B04B](#); cyclones [B04C](#))

Definition statement

This place covers:

Apparatus and methods using centrifugal force for separation, e.g. by utilizing centrifuges or hydrocyclones (cf. [B03B 5/34](#)), not necessarily using special heavy liquids or suspensions. (Documents with special technical features relating to a centrifuge are additionally classified in [B04B](#), documents with special technical features relating to a hydrocyclone are additionally classified in [B04C](#)).

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Separation of suspended solid particles from liquids by sedimentation; Separation of sediment aided by centrifugal force	B01D 21/26
Centrifuges	B04B
Cyclones	B04C

Special rules of classification

In all subgroups below [B03B 5/30](#) (using heavy liquids or suspensions) the liquid for separation is not necessarily a heavy liquid or suspension, but a liquid with a specific gravity (maybe water), suitable to carry out the envisaged sink-float separation.

B03B 5/623

{Upward current classifiers}

Definition statement

This place covers:

Hydraulic classifiers where the hindered settling is accomplished by an upwardly directed fluid flow.

B03B 7/00

Combinations of wet processes or apparatus with other processes or apparatus, e.g. for dressing ores or garbage

Definition statement

This place covers:

Wet processes or apparatus in combination with other types of separating processes or apparatus, particularly for dressing/processing ores/minerals, mainly mechanical treatment of crude ores to separate and concentrate the valuable constituents.

References

Limiting references

This place does not cover:

Combinations of wet solid separating processes comprising a specific separating process	B03B 9/005 - B03B 9/065
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Pre-treatment of ores in general	C22B
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B03B 9/00

General arrangement of separating plant, e.g. flow sheets

Definition statement

This place covers:

Plants with or without flow sheet involving different, more than one, apparatus for separating, screening, classifying, crushing, etc., not necessarily of the wet or pneumatic table type, specially adapted for the materials specified in the sub-groups. If there are multiple separation techniques involved, the classification occurs also in the subgroups for the specific separation technique (e.g. in [B03B 5/18](#) if a moving-sieve jig is involved and if special technical features of this device are claimed).

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Destroying solid waste or transforming solid waste or contaminated solids into something useful or harmless	B09B 3/00
Reclamation of contaminated soil	B09C 1/00
Recovery of plastics or other constituents of waste material containing plastics; Separating plastics from other materials	B29B 17/02
Fertilisers from household or town refuse	C05F 9/00
Preparation of fertilisers characterised by the composting step	C05F 17/00
Production of liquid hydrocarbon mixtures from oil-shale, oil-sand, or non-melting solid carbonaceous or similar materials, e.g. wood, coal by extraction	C10G 1/04
Solid fuels	C10L 5/00
Solid fuels essentially based on materials of non-mineral origin on sewage, house, or town refuse	C10L 5/46
Working up raw materials other than ores, e.g. scrap, to produce non-ferrous metals and compounds thereof	C22B 7/00
Incineration of waste	F23G 5/00
Apparatus or processes specially adapted to the manufacture, installation, removal, maintenance of electric discharge tubes, discharge lamps, or parts thereof; Recovery of material from discharge tubes or lamps	H01J 9/52

B03B 11/00

Feed or discharge devices integral with washing or wet-separating equipment (filling or emptying devices per se [B65G 65/30](#))

Definition statement

This place covers:

All kind of feeding and discharging arrangements, like rotary feeder, scraper, screw or lifting wheel discharger for washing or wet separating apparatus.

B03B 13/00

Control arrangements specially adapted for wet-separating apparatus or for dressing plant, using physical effects (detecting, measuring, or analysing devices [G01](#); control devices in general [G05](#))

Definition statement

This place covers:

E.g. control arrangements adapted for flotation plants as classified in [B03D](#).

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Sorting according to a characteristic or feature of the articles of material being sorted, e.g. by control effected by devices which detect or measure such characteristic or feature; Sorting by manually actuated devices, e.g. switches	B07C 5/00
Detecting, measuring, or analysing devices	G01
Control devices in general	G05