

CPC**COOPERATIVE PATENT CLASSIFICATION****C01D**

COMPOUNDS OF ALKALI METALS, i.e. LITHIUM, SODIUM, POTASSIUM, RUBIDIUM, CAESIUM, OR FRANCIUM ([metal hydrides](#) { monoborane, diborane or addition complexes thereof} [C01B 6/00](#); salts of oxyacids of halogens [C01B 11/00](#); peroxides, salts of peroxyacids [C01B 15/00](#); sulfides [C01B 17/22](#); thiosulfates, dithionites, polythionates [C01B 17/64](#); compounds containing selenium or tellurium [C01B 19/00](#); binary compounds of nitrogen with metals [C01B 21/06](#); azides [C01B 21/08](#); { compounds other than ammonia and cyanogen, containing nitrogen and other non-metals [C01B 21/082](#); metal amides [C01B 21/092](#); nitrites [C01B 21/50](#); phosphides [C01B 21/50](#); { compounds of noble gases [C01B 23/0005](#); phosphides [C01B 25/08](#); salts of oxyacids of phosphorus [C01B 25/16](#); carbides [C01B 31/30](#); compounds containing silicon [C01B 33/00](#); compounds containing boron [C01B 35/00](#); cyanides [C01C 3/08](#); salts of cyanic acid [C01C 3/14](#); salts of cyanamide [C01C 3/16](#); thiocyanates [C01C 3/20](#))

C01D 1/00**Oxides or hydroxides of sodium, potassium or alkali metals in general**

C01D 1/02

. Oxides

C01D 1/04

. Hydroxides

C01D 1/20

.. Preparation by reacting oxides or hydroxides with alkali metal salts

C01D 1/22

... with carbonates or bicarbonates

C01D 1/24

... from or via fluorides or silico-fluorides

C01D 1/26

.. Preparation from or via cyano compounds, e.g. cyanides, cyanamides

C01D 1/28

.. Purification; Separation

C01D 1/30

... by crystallisation

C01D 1/32

... by absorption or precipitation

C01D 1/34

... with selective solvents

C01D 1/36

... by oxidation

C01D 1/38

... by dialysis

C01D 1/40

... by electrolysis

C01D 1/42

.. Concentration; Dehydration

C01D 1/44

.. Preparation in the form of granules, pieces, or other shaped products

C01D 3/00**Halides of sodium, potassium or alkali metals in general** ([halides in general C01B 9/00](#))

C01D 3/02

. Fluorides

C01D 3/04

. Chlorides

C01D 3/06

.. Preparation by working up brines; seawater or spent lyes

C01D 3/08

.. Preparation by working up natural or industrial salt mixtures or siliceous minerals

C01D 3/10

. Bromides

C01D 3/12

. Iodides

C01D 3/14

. Purification

- C01D 3/145 . . {by solid ion-exchangers or solid chelating agents}
- C01D 3/16 . . by precipitation or adsorption {(C01D 3/145 takes precedence)}
- C01D 3/18 . . with selective solvents
- C01D 3/20 . . by melting
- C01D 3/22 . Preparation in the form of granules, pieces, or other shaped products
- C01D 3/24 . . Influencing the crystallisation process
- C01D 3/26 . Preventing the absorption of moisture or caking of the crystals

C01D 5/00**Sulfates or sulfites of sodium, potassium or alkali metals in general {(sulfites in general C01B 17/62)}**

- C01D 5/002 . {Preventing the absorption of moisture or caking of the crystals by additives}
- C01D 5/004 . {Preparation in the form of granules, pieces or other shaped products}
- C01D 5/006 . {Recovery of sodium sulfate from coagulation baths for the spinning of viscose}
- C01D 5/008 . {Preparation of potassium sulfate from alunite}
- C01D 5/02 . Preparation of sulfates from alkali metal salts and sulfuric acid or bisulfates; Preparation of bisulfates
- C01D 5/04 . Preparation of sulfates with the aid of sulfurous acid or sulfites, e.g. Hargreaves process {(pyrosulfites or metabisulfites C01D 5/145)}
- C01D 5/06 . Preparation of sulfates by double decomposition
- C01D 5/08 . . with each other or with ammonium sulfate
- C01D 5/10 . . with sulfates of magnesium, calcium, strontium, or barium
- C01D 5/12 . Preparation of double sulfates of magnesium with sodium or potassium
- C01D 5/14 . Preparation of sulfites (C01D 5/04 takes precedence)
- C01D 5/145 . . {Pyrosulfites or metabisulfites}
- C01D 5/16 . Purification {(C01D 5/145 takes precedence)}
- C01D 5/18 . Dehydration {(C01D 5/145 takes precedence)}

C01D 7/00**Carbonates of sodium, potassium or alkali metals in general**

- C01D 7/02 . Preparation by double decomposition
- C01D 7/04 . . with a fluoride or silico-fluoride (C01D 1/24 takes precedence)
- C01D 7/06 . Preparation via sodium or potassium magnesium carbonate
- C01D 7/07 . Preparation from the hydroxides
- C01D 7/08 . Preparation from or via cyano compounds of sodium or potassium (C01D 1/26 takes precedence)
- C01D 7/10 . Preparation of bicarbonates from carbonates (ammonia soda process C01D 7/18)
- C01D 7/12 . Preparation of carbonates from bicarbonates {or bicarbonate-containing product}
- C01D 7/123 . . {by thermal decomposition of solids in the absence of a liquid medium}
- C01D 7/126 . . {Multi-step processes, e.g. from trona to soda ash}
- C01D 7/14 . Preparation of sesquicarbonates
- C01D 7/16 . Preparation from compounds of sodium or potassium with amines and carbon dioxide
- C01D 7/18 . Preparation by the ammonia-soda process {(C01D 7/12 takes precedence)}
- C01D 7/22 . Purification

- C01D 7/24 . . Crystallisation
- C01D 7/26 . . by precipitation or adsorption
- C01D 7/28 . . with selective solvents
- C01D 7/30 . . by oxidation
- C01D 7/32 . . by dialysis
- C01D 7/34 . . by electrolysis
- C01D 7/35 . Varying the content of water of crystallisation or the specific gravity {(calcination [B01J 6/00](#), [F27B](#))}
- C01D 7/37 . . Densifying sodium carbonate
- C01D 7/38 . Preparation in the form of granules, pieces or other shaped products
- C01D 7/40 . . influencing the crystallisation process
- C01D 7/42 . Preventing the absorption of moisture or caking

C01D 9/00 **Nitrates of sodium, potassium or alkali metals in general** {(preparation as fertilizers or of fertilizers containing them [C05D 5/00](#))}

- C01D 9/02 . Preparation by working-up natural salt mixtures
- C01D 9/04 . Preparation with liquid nitric acid
- C01D 9/06 . Preparation with gaseous nitric acid or nitrogen oxides
- C01D 9/08 . Preparation by double decomposition
- C01D 9/10 . . with ammonium nitrate
- C01D 9/12 . . with nitrates or magnesium, calcium, strontium, or barium
- C01D 9/14 . . of salts of potassium with sodium nitrate
- C01D 9/16 . Purification
- C01D 9/18 . Preparation in the form of shaped products, e.g. granules
- C01D 9/20 . Preventing the absorption of moisture or caking

C01D 13/00 **Compounds of sodium or potassium not provided for elsewhere**

C01D 15/00 **Lithium compounds**

- C01D 15/005 . {Lithium hexafluorophosphate}
- C01D 15/02 . Oxides; Hydroxides
- C01D 15/04 . Halides
- C01D 15/06 . Sulfates; Sulfites
- C01D 15/08 . Carbonates; Bicarbonates
- C01D 15/10 . Nitrates

C01D 17/00 **Rubidium, caesium or francium compounds**

- C01D 17/003 . {Compounds of alkali metals}
- C01D 17/006 . . {Preparation of potassium compounds comprising precipitating potassium ions by an organic reagent or extracting them by a liquid organic phase}