

**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}](#)