

# CPC COOPERATIVE PATENT CLASSIFICATION

## C CHEMISTRY; METALLURGY

(NOTES omitted)

### CHEMISTRY

#### C01 INORGANIC CHEMISTRY

(NOTES omitted)

**C01G** **COMPOUNDS CONTAINING METALS NOT COVERED BY SUBCLASSES [C01D](#) OR [C01F](#)** (metal hydrides {monoborane, diborane or addition complexes thereof} [C01B 6/00](#); salts of oxyacids of halogens [C01B 11/00](#); peroxides, salts or peroxyacids [C01B 15/00](#); 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 containing nitrogen, other non-metals and metal [C01B 21/082](#)}; metal amides [C01B 21/092](#); nitrites [C01B 21/50](#); {compounds of noble gases [C01B 23/0005](#)}; phosphides [C01B 25/08](#); salts of oxyacids of phosphorus [C01B 25/16](#); carbides [C01B 32/90](#); compounds containing silicon [C01B 33/00](#); compounds containing boron [C01B 35/00](#); compounds having molecular sieve properties but not having base-exchange properties [C01B 37/00](#); compounds having molecular sieve and base-exchange properties, e.g. crystalline zeolites, [C01B 39/00](#); cyanides [C01C 3/08](#); salts of cyanamide [C01C 3/16](#); thiocyanates [C01C 3/20](#))

<b>1/00</b>	<b>Methods of preparing compounds of metals not covered by subclasses <a href="#">C01B</a>, <a href="#">C01C</a>, <a href="#">C01D</a>, or <a href="#">C01F</a>, in general</b> (electrolytic production of inorganic compounds <a href="#">C25B 1/00</a> )	<b>7/00</b>	<b>Compounds of gold</b>
1/02	. Oxides	7/003	. {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
1/04	. Carbonyls	7/006	. {Compounds containing gold, with or without oxygen or hydrogen, and containing two or more other elements}
1/06	. Halides	<b>9/00</b>	<b>Compounds of zinc</b>
1/08	. Nitrates	9/003	. {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
1/10	. Sulfates	9/006	. {Compounds containing zinc, with or without oxygen or hydrogen, and containing two or more other elements}
1/12	. Sulfides	9/02	. Oxides; Hydroxides
1/14	. Sulfites	9/03	. . Processes of production using dry methods, e.g. vapour phase processes
<b>3/00</b>	<b>Compounds of copper</b>	9/04	. Halides
3/003	. {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}	9/06	. Sulfates
3/006	. {Compounds containing copper, with or without oxygen or hydrogen, and containing two or more other elements}	9/08	. Sulfides
3/02	. Oxides; Hydroxides	<b>11/00</b>	<b>Compounds of cadmium</b>
3/04	. Halides	11/003	. {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
3/05	. . Chlorides	11/006	. {Compounds containing cadmium, with or without oxygen or hydrogen, and containing two or more other elements}
3/06	. . Oxychlorides	11/02	. Sulfides
3/08	. Nitrates	<b>13/00</b>	<b>Compounds of mercury</b>
3/10	. Sulfates	13/003	. {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
3/12	. Sulfides	13/006	. {Compounds containing mercury, with or without oxygen or hydrogen, and containing two or more other elements}
3/14	. Complexes with ammonia	13/02	. Oxides
<b>5/00</b>	<b>Compounds of silver</b>		
5/003	. {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}		
5/006	. {Compounds containing silver, with or without oxygen or hydrogen, and containing two or more other elements}		
5/02	. Halides		

- 13/04 . Halides
- 15/00 Compounds of gallium, indium or thallium**
- 15/003 . {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
- 15/006 . {Compounds containing gallium, indium or thallium, with or without oxygen or hydrogen, and containing two or more other elements}
- 17/00 Compounds of germanium**
- 17/003 . {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
- 17/006 . {Compounds containing germanium, with or without oxygen or hydrogen, and containing two or more other elements}
- 17/02 . Germanium dioxide
- 17/04 . Halides of germanium
- 19/00 Compounds of tin**
- 19/003 . {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
- 19/006 . {Compounds containing tin, with or without oxygen or hydrogen, and containing two or more other elements}
- 19/02 . Oxides
- 19/04 . Halides
- 19/06 . . Stannous chloride
- 19/08 . . Stannic chloride
- 21/00 Compounds of lead**
- 21/003 . {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
- 21/006 . {Compounds containing lead, with or without oxygen or hydrogen, and containing two or more other elements}
- 21/02 . Oxides
- 21/04 . . Lead suboxide [Pb<sub>2</sub>O]
- 21/06 . . Lead monoxide [PbO]
- 21/08 . . Lead dioxide [PbO<sub>2</sub>]
- 21/10 . . Red lead [Pb<sub>3</sub>O<sub>4</sub>]
- 21/12 . Hydroxides
- 21/14 . Carbonates
- 21/16 . Halides
- 21/18 . Nitrates
- 21/20 . Sulfates
- 21/21 . Sulfides
- 21/22 . Plumbates; Plumbites
- 23/00 Compounds of titanium** {(preparation of Ti-compounds from ores or scraps [C22B 34/12](#))}
- 23/001 . {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
- 23/002 . {Compounds containing titanium, with or without oxygen or hydrogen, and containing two or more other elements ([C01G 23/001](#), [C01G 23/003](#) take precedence)}
- 23/003 . {Titanates ([C01G 23/001](#) takes precedence)}
- 23/005 . . {Alkali titanates}
- 23/006 . . {Alkaline earth titanates}
- 23/007 . {Titanium sulfides ([C01G 23/001](#) takes precedence)}
- 23/008 . {Titanium- and titanyl sulfate ([C01G 23/001](#) takes precedence)}
- 23/02 . Halides of titanium
- 23/022 . . {Titanium tetrachloride}
- 23/024 . . . {Purification of tetrachloride}
- 23/026 . . {Titanium trichloride}
- 23/028 . . {Titanium fluoride}
- 23/04 . Oxides; Hydroxides
- 23/043 . . {Titanium sub-oxides}
- 23/047 . . Titanium dioxide
- 23/0475 . . . {Purification}
- 23/053 . . . Producing by wet processes, e.g. hydrolysing titanium salts
- 23/0532 . . . . {by hydrolysing sulfate-containing salts}
- 23/0534 . . . . . {in the presence of seeds}
- 23/0536 . . . . {by hydrolysing chloride-containing salts}
- 23/0538 . . . . . {in the presence of seeds}
- 23/07 . . . Producing by vapour phase processes, e.g. halide oxidation
- 23/075 . . . . {Evacuation and cooling of the gaseous suspension containing the oxide; Desacidification and elimination of gases occluded in the separated oxide}
- 23/08 . . . Drying; Calcining {; After treatment of titanium oxide}
- 25/00 Compounds of zirconium**
- 25/003 . {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
- 25/006 . {Compounds containing zirconium, with or without oxygen or hydrogen, and containing two or more other elements}
- 25/02 . Oxides
- 25/04 . Halides
- 25/06 . Sulfates
- 27/00 Compounds of hafnium**
- 27/003 . {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
- 27/006 . {Compounds containing hafnium, with or without oxygen or hydrogen, and containing two or more other elements}
- 27/02 . Oxides
- 27/04 . Halides
- 27/06 . Sulfates
- 28/00 Compounds of arsenic**
- 28/001 . {Preparation involving a solvent-solvent extraction, an adsorption or an ion-exchange}
- 28/002 . {Compounds containing arsenic, with or without oxygen or hydrogen, and containing two or more other elements ([C01G 28/001](#) takes precedence)}
- 28/004 . . {containing halogen}
- 28/005 . {Oxides; Hydroxides; Oxyacids ([C01G 28/001](#) takes precedence)}
- 28/007 . {Halides ([C01G 28/001](#) takes precedence)}
- 28/008 . {Sulfides ([C01G 28/001](#) takes precedence)}
- 28/02 . Arsenates; Arsenites {([C01G 28/001](#) takes precedence)}
- 28/023 . . {of ammonium, alkali or alkaline-earth metals or magnesium}
- 28/026 . . {containing at least two metals}
- 29/00 Compounds of bismuth**
- 29/003 . {Preparations involving a liquid-liquid extraction, an adsorption or an ion-exchange}

- 29/006 . {Compounds containing bismuth, with or without oxygen or hydrogen, and containing two or more other elements}
- 30/00 Compounds of antimony**
- 30/001 . {Preparation involving a solvent-solvent extraction, an adsorption or an ion-exchange}
- 30/002 . {Compounds containing antimony, with or without oxygen or hydrogen, and containing two or more other elements ([C01G 30/001](#) takes precedence)}
- 30/003 . . {containing halogen}
- 30/004 . {Oxides; Hydroxides; Oxyacids ([C01G 30/001](#) takes precedence)}
- 30/005 . . {Oxides}
- 30/006 . {Halides ([C01G 30/001](#) takes precedence)}
- 30/007 . . {of binary type SbX<sub>3</sub> or SbX<sub>5</sub> with X representing a halogen, or mixed of the type SbX<sub>3</sub>X'<sub>2</sub> with X,X' representing different halogens}
- 30/008 . {Sulfides ([C01G 30/001](#) takes precedence)}
- 30/02 . Antimonates; Antimonites {([C01G 30/001](#) takes precedence)}
- 30/023 . . {of ammonium, alkali or alkaline-earth metals or magnesium}
- 30/026 . . {containing at least two metals}
- 31/00 Compounds of vanadium**
- 31/003 . {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
- 31/006 . {Compounds containing vanadium, with or without oxygen or hydrogen, and containing two or more other elements}
- 31/02 . Oxides
- 31/04 . Halides
- 33/00 Compounds of niobium**
- 33/003 . {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
- 33/006 . {Compounds containing niobium, with or without oxygen or hydrogen, and containing two or more other elements}
- 35/00 Compounds of tantalum**
- 35/003 . {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
- 35/006 . {Compounds containing tantalum, with or without oxygen or hydrogen, and containing two or more other elements}
- 35/02 . Halides
- 37/00 Compounds of chromium**
- 37/003 . {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
- 37/006 . {Compounds containing chromium, with or without oxygen or hydrogen, and containing two or more other elements}
- 37/02 . Oxides or hydrates thereof
- 37/027 . . Chromium dioxide
- 37/033 . . Chromium trioxide; Chromic acid
- 37/04 . Chromium halides
- 37/06 . . Chromylhalides
- 37/08 . Chromium sulfates
- 37/10 . . Chrome alum
- 37/14 . Chromates; Bichromates
- 39/00 Compounds of molybdenum**
- 39/003 . {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
- 39/006 . {Compounds containing molybdenum, with or without oxygen or hydrogen, and containing two or more other elements}
- 39/02 . Oxides; Hydroxides
- 39/04 . Halides
- 39/06 . Sulfides
- 41/00 Compounds of tungsten**
- 41/003 . {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
- 41/006 . {Compounds containing tungsten, with or without oxygen or hydrogen, and containing two or more other elements}
- 41/02 . Oxides; Hydroxides
- 41/04 . Halides
- 43/00 Compounds of uranium**
- 43/003 . {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
- 43/006 . {Compounds containing uranium, with or without oxygen or hydrogen, and containing two or more other elements}
- 43/01 . Oxides; Hydroxides
- 43/025 . . Uranium dioxide
- 43/04 . Halides of uranium
- 43/06 . . Fluorides
- 43/063 . . . {Hexafluoride (UF<sub>6</sub>)}
- 43/066 . . . . {Preparation}
- 43/08 . . Chlorides
- 43/10 . . Bromides
- 43/12 . . Iodides
- 45/00 Compounds of manganese**
- WARNING**
- Group [C01G 45/00](#) is impacted by reclassification into groups [C01G 45/03](#), [C01G 45/05](#), [C01G 45/20](#), [C01G 45/22](#) and [C01G 45/24](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 45/01 . Preparation or separation involving a liquid-liquid extraction, an adsorption or an ion-exchange
- WARNING**
- Group [C01G 45/01](#) is impacted by reclassification into groups [C01G 45/03](#), [C01G 45/05](#), [C01G 45/20](#), [C01G 45/22](#) and [C01G 45/24](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 45/02 . Oxides
- WARNING**
- Group [C01G 45/02](#) is impacted by reclassification into groups [C01G 45/022](#), [C01G 45/024](#), [C01G 45/026](#), [C01G 45/028](#) and [C01G 45/03](#).
- All groups listed in this Warning should be considered in order to perform a complete search.

- 45/022 . . Manganese monoxide
- WARNING**
- Group [C01G 45/022](#) is incomplete pending reclassification of documents from group [C01G 45/02](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 45/024 . . Manganese dioxide
- WARNING**
- Group [C01G 45/024](#) is incomplete pending reclassification of documents from group [C01G 45/02](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 45/026 . . Dimanganese trioxide
- WARNING**
- Group [C01G 45/026](#) is incomplete pending reclassification of documents from group [C01G 45/02](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 45/028 . . Trimanganese tetraoxide
- WARNING**
- Group [C01G 45/028](#) is incomplete pending reclassification of documents from group [C01G 45/02](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 45/03 . Hydroxides; Oxyhydroxides
- WARNING**
- Group [C01G 45/03](#) is incomplete pending reclassification of documents from groups [C01G 45/00](#) and [C01G 45/02](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 45/04 . Carbonyls
- 45/05 . Carbonates
- WARNING**
- Group [C01G 45/05](#) is incomplete pending reclassification of documents from group [C01G 45/00](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 45/06 . Halides; Oxyhalides
- WARNING**
- Group [C01G 45/06](#) is impacted by reclassification into group [C01G 45/07](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 45/07 . . Chlorides; Oxychlorides
- WARNING**
- Group [C01G 45/07](#) is incomplete pending reclassification of documents from group [C01G 45/06](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 45/08 . Nitrates
- 45/10 . Sulfates
- 45/12 . Complex oxides containing manganese and at least one other metal element
- 45/1207 . . Permanganates ( $[\text{MnO}_4]^-$ ) or manganates ( $[\text{MnO}_4]^{2-}$ )
- 45/1214 . . . containing alkali metals
- 45/1221 . . Manganates or manganites with trivalent manganese, tetravalent manganese or mixtures thereof
- 45/1228 . . . of the type  $(\text{MnO}_2)^+$ , e.g.  $\text{LiMnO}_2$  or  $\text{Li}(\text{M}_x\text{Mn}_{1-x})\text{O}_2$
- 45/1235 . . . of the type  $(\text{Mn}_2\text{O}_4)^{2-}$ , e.g.  $\text{Li}_2\text{Mn}_2\text{O}_4$  or  $\text{Li}_2(\text{M}_x\text{Mn}_{2-x})\text{O}_4$
- 45/1242 . . . of the type  $(\text{Mn}_2\text{O}_4)^-$ , e.g.  $\text{LiMn}_2\text{O}_4$  or  $\text{Li}(\text{M}_x\text{Mn}_{2-x})\text{O}_4$
- 45/125 . . . of the type  $(\text{MnO}_3)^{n-}$ , e.g.  $\text{CaMnO}_3$
- 45/1257 . . . containing lithium, e.g.  $\text{Li}_2\text{MnO}_3$  or  $\text{Li}_2(\text{M}_x\text{Mn}_{1-x})\text{O}_3$
- 45/1264 . . . containing rare earths, e.g.  $(\text{La}_{1-x}\text{Ca}_x)\text{MnO}_3$  or  $\text{LaMnO}_3$
- 45/1271 . . . {of the type  $(\text{Mn}_2\text{O}_8)^{n-}$ , e.g.  $(\text{LaSr}_3)\text{Mn}_2\text{O}_8$ }
- 45/1278 . . . {of the type  $(\text{Mn}_2\text{O}_7)^{n-}$ , e.g.  $(\text{Sr}_{2-x}\text{Nd}_x)\text{Mn}_2\text{O}_7$  or  $\text{Tl}_2\text{Mn}_2\text{O}_7$ }
- 45/1285 . . . {of the type  $(\text{Mn}_2\text{O}_5)^{n-}$ }
- 45/1292 . . . {of the type  $(\text{Mn}_5\text{O}_{12})^{n-}$ }
- 45/20 . Compounds containing manganese, with or without oxygen or hydrogen, and containing one or more other elements ([C01G 45/04](#) - [C01G 45/12](#) take precedence)
- WARNING**
- Group [C01G 45/20](#) is incomplete pending reclassification of documents from group [C01G 45/00](#).
- All groups listed in this Warning should be considered in order to perform a complete search.

- 45/22 . . Compounds containing manganese, with or without oxygen or hydrogen, and containing two or more other elements

**WARNING**

Group [C01G 45/22](#) is incomplete pending reclassification of documents from group [C01G 45/00](#).

Group [C01G 45/22](#) is also impacted by reclassification into group [C01G 45/24](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- 45/24 . . Hydroxides

**WARNING**

Group [C01G 45/24](#) is incomplete pending reclassification of documents from groups [C01G 45/00](#) and [C01G 45/22](#).

All groups listed in this Warning should be considered in order to perform a complete search.

**47/00 Compounds of rhenium**

- 47/003 . {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
- 47/006 . {Compounds containing rhenium, with or without oxygen or hydrogen, and containing two or more other elements}

**49/00 Compounds of iron**

- 49/0009 . {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
- 49/0018 . {Mixed oxides or hydroxides, ([C01G 49/0009](#) takes precedence)}
- 49/0027 . . {containing one alkali metal}
- 49/0036 . . {containing one alkaline earth metal, magnesium or lead}
- 49/0045 . . {containing aluminium}
- 49/0054 . . {containing one rare earth metal, yttrium or scandium}
- 49/0063 . . {containing zinc}
- 49/0072 . . {containing manganese}
- 49/0081 . . {containing iron in unusual valence state [IV, V, VI]}
- 49/009 . {Compounds containing iron, with or without oxygen or hydrogen, and containing two or more other elements}
- 49/02 . Oxides; Hydroxides {([C01G 49/0018](#) takes precedence)}
- 49/04 . . Ferrous oxide [FeO]
- 49/06 . . Ferric oxide [Fe<sub>2</sub>O<sub>3</sub>]
- 49/08 . . Ferroso-ferric oxide [Fe<sub>3</sub>O<sub>4</sub>]
- 49/10 . Halides {([C01G 49/0018](#) takes precedence)}
- 49/12 . Sulfides {([C01G 49/0018](#) takes precedence)}
- 49/14 . Sulfates {([C01G 49/0018](#) takes precedence)}
- 49/16 . Carbonyls {([C01G 49/0018](#) takes precedence)}

**51/00 Compounds of cobalt****WARNING**

Group [C01G 51/00](#) is impacted by reclassification into groups [C01G 51/05](#), [C01G 51/08](#), [C01G 51/085](#), [C01G 51/15](#), [C01G 51/80](#), [C01G 51/82](#) and [C01G 51/84](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- 51/01 . Preparation or separation involving a liquid-liquid extraction, an adsorption or an ion-exchange
- 51/02 . Carbonyls
- 51/04 . Oxides

**WARNING**

Group [C01G 51/04](#) is impacted by reclassification into group [C01G 51/05](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- 51/05 . Hydroxides; Oxyhydroxides

**WARNING**

Group [C01G 51/05](#) is incomplete pending reclassification of documents from groups [C01G 51/00](#) and [C01G 51/04](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- 51/06 . Carbonates
- 51/08 . Halides; Oxyhalides

**WARNING**

Groups [C01G 51/08](#) and [C01G 51/085](#) are incomplete pending reclassification of documents from group [C01G 51/00](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- 51/085 . . {Chlorides; Oxychlorides}
- 51/10 . Sulfates
- 51/15 . Sulfides; Oxysulfides

**WARNING**

Group [C01G 51/15](#) is incomplete pending reclassification of documents from group [C01G 51/00](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- 51/20 . Complexes with ammonia
- 51/40 . Complex oxides containing cobalt and at least one other metal element
- 51/42 . . containing alkali metals, e.g. LiCoO<sub>2</sub>
- 51/44 . . . containing manganese
- 51/50 . . . . of the type (MnO<sub>2</sub>)<sup>n</sup>, e.g. Li(Co<sub>x</sub>Mn<sub>1-x</sub>)O<sub>2</sub> or Li(M<sub>y</sub>Co<sub>x</sub>Mn<sub>1-x-y</sub>)O<sub>2</sub>
- 51/52 . . . . of the type (Mn<sub>2</sub>O<sub>4</sub>)<sup>2-</sup>, e.g. Li<sub>2</sub>(Co<sub>x</sub>Mn<sub>2-x</sub>)O<sub>4</sub> or Li<sub>2</sub>(M<sub>y</sub>Co<sub>x</sub>Mn<sub>2-x-y</sub>)O<sub>4</sub>
- 51/54 . . . . of the type (Mn<sub>2</sub>O<sub>4</sub>)<sup>-</sup>, e.g. Li(Co<sub>x</sub>Mn<sub>2-x</sub>)O<sub>4</sub> or Li(M<sub>y</sub>Co<sub>x</sub>Mn<sub>2-x-y</sub>)O<sub>4</sub>

- 51/56 . . . . of the type  $(\text{MnO}_3)^{2-}$ , e.g.  $\text{Li}_2(\text{Co}_x\text{Mn}_{1-x})\text{O}_3$  or  $\text{Li}_2(\text{M}_y\text{Co}_x\text{Mn}_{1-x-y})\text{O}_3$
- 51/58 . . . . {of the type  $(\text{Mn}_2\text{O}_8)^{n-}$ }
- 51/60 . . . . {of the type  $(\text{Mn}_2\text{O}_7)^{n-}$ }
- 51/62 . . . . {of the type  $(\text{Mn}_2\text{O}_5)^{n-}$ }
- 51/64 . . . . {of the type  $(\text{Mn}_5\text{O}_{12})^{n-}$ }
- 51/66 . . containing alkaline earth metals, e.g.  $\text{SrCoO}_3$
- 51/68 . . . containing rare earths, e.g.  $(\text{La}_{0.3}\text{Sr}_{0.7})\text{CoO}_3$
- 51/70 . . containing rare earths, e.g.  $\text{LaCoO}_3$  ([C01G 51/68](#) takes precedence)
- 51/80 . Compounds containing cobalt, with or without oxygen or hydrogen, and containing one or more other elements ([C01G 51/02](#), [C01G 51/06](#) - [C01G 51/40](#) take precedence)
- WARNING**
- Group [C01G 51/80](#) is incomplete pending reclassification of documents from group [C01G 51/00](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 51/82 . . Compounds containing cobalt, with or without oxygen or hydrogen, and containing two or more other elements
- WARNING**
- Group [C01G 51/82](#) is incomplete pending reclassification of documents from group [C01G 51/00](#).
- Group [C01G 51/82](#) is also impacted by reclassification into group [C01G 51/84](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 51/84 . . Hydroxides
- WARNING**
- Group [C01G 51/84](#) is incomplete pending reclassification of documents from groups [C01G 51/00](#) and [C01G 51/82](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 53/00 Compounds of nickel**
- WARNING**
- Group [C01G 53/00](#) is impacted by reclassification into groups [C01G 53/05](#), [C01G 53/08](#), [C01G 53/09](#), [C01G 53/11](#), [C01G 53/80](#), [C01G 53/82](#) and [C01G 53/84](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 53/01 . Preparation or separation involving a liquid-liquid extraction, an adsorption or an ion-exchange
- 53/02 . Carbonyls
- 53/04 . Oxides
- WARNING**
- Group [C01G 53/04](#) is impacted by reclassification into group [C01G 53/05](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 53/05 . Hydroxides; Oxyhydroxides
- WARNING**
- Group [C01G 53/05](#) is incomplete pending reclassification of documents from groups [C01G 53/00](#) and [C01G 53/04](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 53/06 . Carbonates
- 53/08 . Halides; Oxyhalides
- WARNING**
- Groups [C01G 53/08](#) and [C01G 53/09](#) are incomplete pending reclassification of documents from group [C01G 53/00](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 53/09 . . Chlorides; Oxychlorides
- 53/10 . Sulfates
- 53/11 . Sulfides; Oxysulfides
- WARNING**
- Group [C01G 53/11](#) is incomplete pending reclassification of documents from group [C01G 53/00](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 53/12 . Complexes with ammonia
- 53/40 . Complex oxides containing nickel and at least one other metal element
- 53/42 . . containing alkali metals, e.g.  $\text{LiNiO}_2$
- 53/44 . . . containing manganese
- 53/50 . . . . of the type  $(\text{MnO}_2)^{n-}$ , e.g.  $\text{Li}(\text{Ni}_x\text{Mn}_{1-x})\text{O}_2$  or  $\text{Li}(\text{M}_y\text{Ni}_x\text{Mn}_{1-x-y})\text{O}_2$
- WARNING**
- Group [C01G 53/50](#) is impacted by reclassification into groups [C01G 53/502](#), [C01G 53/504](#), [C01G 53/506](#) and [C01G 53/51](#).
- All groups listed in this Warning should be considered in order to perform a complete search.

- 53/502 . . . . . containing lithium and cobalt
- WARNING**
- Groups [C01G 53/502](#), [C01G 53/504](#) and [C01G 53/506](#) are incomplete pending reclassification of documents from group [C01G 53/50](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 53/504 . . . . . with the molar ratio of nickel with respect to all the metals other than alkali metals higher than or equal to 0.5, e.g.  $\text{Li}(\text{M}_z\text{Ni}_x\text{Co}_y\text{Mn}_{1-x-y-z})\text{O}_2$  with  $x \geq 0.5$
- 53/506 . . . . . with the molar ratio of nickel with respect to all the metals other than alkali metals higher than or equal to 0.8, e.g.  $\text{Li}(\text{M}_z\text{Ni}_x\text{Co}_y\text{Mn}_{1-x-y-z})\text{O}_2$  with  $x \geq 0.8$
- 53/51 . . . . . containing sodium
- WARNING**
- Group [C01G 53/51](#) is incomplete pending reclassification of documents from group [C01G 53/50](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 53/52 . . . . . of the type  $(\text{Mn}_2\text{O}_4)^{2-}$ , e.g.  $\text{Li}_2(\text{Ni}_x\text{Mn}_{2-x})\text{O}_4$  or  $\text{Li}_2(\text{M}_y\text{Ni}_x\text{Mn}_{2-x-y})\text{O}_4$
- 53/54 . . . . . of the type  $(\text{Mn}_2\text{O}_4)^-$ , e.g.  $\text{Li}(\text{Ni}_x\text{Mn}_{2-x})\text{O}_4$  or  $\text{Li}(\text{M}_y\text{Ni}_x\text{Mn}_{2-x-y})\text{O}_4$
- 53/56 . . . . . of the type  $(\text{MnO}_3)^{2-}$ , e.g.  $\text{Li}_2(\text{Ni}_x\text{Mn}_{1-x})\text{O}_3$  or  $\text{Li}_2(\text{M}_y\text{Ni}_x\text{Mn}_{1-x-y})\text{O}_3$
- 53/58 . . . . . {of the type  $(\text{Mn}_2\text{O}_8)^{n-}$ }
- 53/60 . . . . . {of the type  $(\text{Mn}_2\text{O}_7)^{n-}$ }
- 53/62 . . . . . {of the type  $(\text{Mn}_2\text{O}_5)^{n-}$ }
- 53/64 . . . . . {of the type  $(\text{Mn}_5\text{O}_{12})^{n-}$ }
- 53/66 . . . containing alkaline earth metals, e.g.  $\text{SrNiO}_3$  or  $\text{SrNiO}_2$
- 53/68 . . . containing rare earths, e.g.  $(\text{La}_{1.62}\text{Sr}_{0.38})\text{NiO}_4$
- 53/70 . . . containing rare earths, e.g.  $\text{LaNiO}_3$  ([C01G 53/68](#) takes precedence)
- 53/80 . . . Compounds containing nickel, with or without oxygen or hydrogen, and containing one or more other elements ([C01G 53/02](#), [C01G 53/06](#) - [C01G 53/40](#) take precedence)
- WARNING**
- Group [C01G 53/80](#) is incomplete pending reclassification of documents from group [C01G 53/00](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 53/82 . . . Compounds containing nickel, with or without oxygen or hydrogen, and containing two or more other elements
- WARNING**
- Group [C01G 53/82](#) is incomplete pending reclassification of documents from group [C01G 53/00](#).
- Group [C01G 53/82](#) is also impacted by reclassification into group [C01G 53/84](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 53/84 . . . Hydroxides
- WARNING**
- Group [C01G 53/84](#) is incomplete pending reclassification of documents from groups [C01G 53/00](#) and [C01G 53/82](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 55/00 Compounds of ruthenium, rhodium, palladium, osmium, iridium, or platinum**
- 55/001 . . {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
- 55/002 . . {Compounds containing ruthenium, rhodium, palladium, osmium, iridium or platinum, with or without oxygen or hydrogen, and containing two or more other elements ([C01G 55/007](#) takes precedence)}
- 55/004 . . {Oxides; Hydroxides}
- 55/005 . . {Halides}
- 55/007 . . {Compounds containing at least one carbonyl group}
- 55/008 . . {Carbonyls}
- 56/00 Compounds of transuranic elements**
- 56/001 . . {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
- 56/002 . . {by adsorption or by ion-exchange on a solid support}
- 56/003 . . {Compounds containing transuranic elements, with or without oxygen or hydrogen, and containing two or more other elements ([C01G 56/001](#) takes precedence)}
- 56/004 . . {Compounds of plutonium ([C01G 56/001](#) takes precedence)}
- 56/005 . . {Oxides; Hydroxides}
- 56/006 . . {Halides}
- 56/007 . . {Compounds of transuranic elements ([C01G 56/001](#) and [C01G 56/004](#) take precedence)}
- 56/008 . . {Compounds of neptunium}
- 56/009 . . {Compounds of americium}
- 99/00 Subject matter not provided for in other groups of this subclass**
- 99/003 . . {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
- 99/006 . . {Compounds containing a metal not provided for elsewhere in this subclass, with or without oxygen or hydrogen, and containing two or more other elements ([C01G 99/003](#) takes precedence)}