

# 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](#))

**1/00 Methods of preparing compounds of metals not covered by subclasses [C01B](#), [C01C](#), [C01D](#), or [C01F](#), in general** (electrolytic production of inorganic compounds [C25B 1/00](#))

- 1/02 . Oxides
- 1/04 . Carbonyls
- 1/06 . Halides
- 1/08 . Nitrates
- 1/10 . Sulfates
- 1/12 . Sulfides
- 1/14 . Sulfitess

#### **3/00 Compounds of copper**

- 3/003 . {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
- 3/006 . {Compounds containing copper, with or without oxygen or hydrogen, and containing two or more other elements}
- 3/02 . Oxides; Hydroxides
- 3/04 . Halides
- 3/05 . . Chlorides
- 3/06 . . Oxychlorides
- 3/08 . Nitrates
- 3/10 . Sulfates
- 3/12 . Sulfides
- 3/14 . Complexes with ammonia

#### **5/00 Compounds of silver**

- 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

#### **7/00 Compounds of gold**

- 7/003 . {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
- 7/006 . {Compounds containing gold, with or without oxygen or hydrogen, and containing two or more other elements}

#### **9/00 Compounds of zinc**

- 9/003 . {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
- 9/006 . {Compounds containing zinc, with or without oxygen or hydrogen, and containing two or more other elements}
- 9/02 . Oxides; Hydroxides
- 9/03 . . Processes of production using dry methods, e.g. vapour phase processes
- 9/04 . Halides
- 9/06 . Sulfates
- 9/08 . Sulfides

#### **11/00 Compounds of cadmium**

- 11/003 . {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
- 11/006 . {Compounds containing cadmium, with or without oxygen or hydrogen, and containing two or more other elements}
- 11/02 . Sulfides

#### **13/00 Compounds of mercury**

- 13/003 . {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}
- 13/006 . {Compounds containing mercury, with or without oxygen or hydrogen, and containing two or more other elements}
- 13/02 . Oxides

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

29/006	<ul style="list-style-type: none"> <li>. {Compounds containing bismuth, with or without oxygen or hydrogen, and containing two or more other elements}</li> </ul>	39/003	<ul style="list-style-type: none"> <li>. {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}</li> </ul>
<b>30/00</b>	<b>Compounds of antimony</b>	39/006	<ul style="list-style-type: none"> <li>. {Compounds containing molybdenum, with or without oxygen or hydrogen, and containing two or more other elements}</li> </ul>
30/001	<ul style="list-style-type: none"> <li>. {Preparation involving a solvent-solvent extraction, an adsorption or an ion-exchange}</li> </ul>	39/02	<ul style="list-style-type: none"> <li>. Oxides; Hydroxides</li> </ul>
30/002	<ul style="list-style-type: none"> <li>. {Compounds containing antimony, with or without oxygen or hydrogen, and containing two or more other elements (<a href="#">C01G 30/001</a> takes precedence)}</li> </ul>	39/04	<ul style="list-style-type: none"> <li>. Halides</li> </ul>
30/003	<ul style="list-style-type: none"> <li>. . {containing halogen}</li> </ul>	39/06	<ul style="list-style-type: none"> <li>. Sulfides</li> </ul>
30/004	<ul style="list-style-type: none"> <li>. {Oxides; Hydroxides; Oxyacids (<a href="#">C01G 30/001</a> takes precedence)}</li> </ul>	<b>41/00</b>	<b>Compounds of tungsten</b>
30/005	<ul style="list-style-type: none"> <li>. . {Oxides}</li> </ul>	41/003	<ul style="list-style-type: none"> <li>. {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}</li> </ul>
30/006	<ul style="list-style-type: none"> <li>. {Halides (<a href="#">C01G 30/001</a> takes precedence)}</li> </ul>	41/006	<ul style="list-style-type: none"> <li>. {Compounds containing tungsten, with or without oxygen or hydrogen, and containing two or more other elements}</li> </ul>
30/007	<ul style="list-style-type: none"> <li>. . {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}</li> </ul>	41/02	<ul style="list-style-type: none"> <li>. Oxides; Hydroxides</li> </ul>
30/008	<ul style="list-style-type: none"> <li>. {Sulfides (<a href="#">C01G 30/001</a> takes precedence)}</li> </ul>	41/04	<ul style="list-style-type: none"> <li>. Halides</li> </ul>
30/02	<ul style="list-style-type: none"> <li>. Antimonates; Antimonites {(<a href="#">C01G 30/001</a> takes precedence)}</li> </ul>	<b>43/00</b>	<b>Compounds of uranium</b>
30/023	<ul style="list-style-type: none"> <li>. . {of ammonium, alkali or alkaline-earth metals or magnesium}</li> </ul>	43/003	<ul style="list-style-type: none"> <li>. {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}</li> </ul>
30/026	<ul style="list-style-type: none"> <li>. . {containing at least two metals}</li> </ul>	43/006	<ul style="list-style-type: none"> <li>. {Compounds containing uranium, with or without oxygen or hydrogen, and containing two or more other elements}</li> </ul>
<b>31/00</b>	<b>Compounds of vanadium</b>	43/01	<ul style="list-style-type: none"> <li>. Oxides; Hydroxides</li> </ul>
31/003	<ul style="list-style-type: none"> <li>. {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}</li> </ul>	43/025	<ul style="list-style-type: none"> <li>. . Uranium dioxide</li> </ul>
31/006	<ul style="list-style-type: none"> <li>. {Compounds containing vanadium, with or without oxygen or hydrogen, and containing two or more other elements}</li> </ul>	43/04	<ul style="list-style-type: none"> <li>. Halides of uranium</li> </ul>
31/02	<ul style="list-style-type: none"> <li>. Oxides</li> </ul>	43/06	<ul style="list-style-type: none"> <li>. . Fluorides</li> </ul>
31/04	<ul style="list-style-type: none"> <li>. Halides</li> </ul>	43/063	<ul style="list-style-type: none"> <li>. . . {Hexafluoride (UF<sub>6</sub>)}</li> </ul>
<b>33/00</b>	<b>Compounds of niobium</b>	43/066	<ul style="list-style-type: none"> <li>. . . . {Preparation}</li> </ul>
33/003	<ul style="list-style-type: none"> <li>. {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}</li> </ul>	43/08	<ul style="list-style-type: none"> <li>. . Chlorides</li> </ul>
33/006	<ul style="list-style-type: none"> <li>. {Compounds containing niobium, with or without oxygen or hydrogen, and containing two or more other elements}</li> </ul>	43/10	<ul style="list-style-type: none"> <li>. . Bromides</li> </ul>
<b>35/00</b>	<b>Compounds of tantalum</b>	43/12	<ul style="list-style-type: none"> <li>. . Iodides</li> </ul>
35/003	<ul style="list-style-type: none"> <li>. {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}</li> </ul>	<b>45/00</b>	<b>Compounds of manganese</b>
35/006	<ul style="list-style-type: none"> <li>. {Compounds containing tantalum, with or without oxygen or hydrogen, and containing two or more other elements}</li> </ul>	<b>WARNING</b>	
35/02	<ul style="list-style-type: none"> <li>. Halides</li> </ul>	<p>Group <a href="#">C01G 45/00</a> is impacted by reclassification into groups <a href="#">C01G 45/03</a>, <a href="#">C01G 45/05</a>, <a href="#">C01G 45/20</a>, <a href="#">C01G 45/22</a> and <a href="#">C01G 45/24</a>.</p> <p>All groups listed in this Warning should be considered in order to perform a complete search.</p>	
<b>37/00</b>	<b>Compounds of chromium</b>	45/01	<ul style="list-style-type: none"> <li>. Preparation or separation involving a liquid-liquid extraction, an adsorption or an ion-exchange</li> </ul>
37/003	<ul style="list-style-type: none"> <li>. {Preparation involving a liquid-liquid extraction, an adsorption or an ion-exchange}</li> </ul>	<b>WARNING</b>	
37/006	<ul style="list-style-type: none"> <li>. {Compounds containing chromium, with or without oxygen or hydrogen, and containing two or more other elements}</li> </ul>	<p>Group <a href="#">C01G 45/01</a> is impacted by reclassification into groups <a href="#">C01G 45/03</a>, <a href="#">C01G 45/05</a>, <a href="#">C01G 45/20</a>, <a href="#">C01G 45/22</a> and <a href="#">C01G 45/24</a>.</p> <p>All groups listed in this Warning should be considered in order to perform a complete search.</p>	
37/02	<ul style="list-style-type: none"> <li>. Oxides or hydrates thereof</li> </ul>	45/02	<ul style="list-style-type: none"> <li>. Oxides</li> </ul>
37/027	<ul style="list-style-type: none"> <li>. . Chromium dioxide</li> </ul>	<b>WARNING</b>	
37/033	<ul style="list-style-type: none"> <li>. . Chromium trioxide; Chromic acid</li> </ul>	<p>Group <a href="#">C01G 45/02</a> is impacted by reclassification into groups <a href="#">C01G 45/022</a>, <a href="#">C01G 45/024</a>, <a href="#">C01G 45/026</a>, <a href="#">C01G 45/028</a> and <a href="#">C01G 45/03</a>.</p> <p>All groups listed in this Warning should be considered in order to perform a complete search.</p>	
37/04	<ul style="list-style-type: none"> <li>. Chromium halides</li> </ul>		
37/06	<ul style="list-style-type: none"> <li>. . Chromylhalides</li> </ul>		
37/08	<ul style="list-style-type: none"> <li>. Chromium sulfates</li> </ul>		
37/10	<ul style="list-style-type: none"> <li>. . Chrome alum</li> </ul>		
37/14	<ul style="list-style-type: none"> <li>. Chromates; Bichromates</li> </ul>		
<b>39/00</b>	<b>Compounds of molybdenum</b>		

- 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  $\text{Ti}_2\text{Mn}_2\text{O}_7$ }

- 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; Oxy-sulfides

**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)}