

CPC COOPERATIVE PATENT CLASSIFICATION

C01C **AMMONIA; CYANOGEN; COMPOUNDS THEREOF** ({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](#); thiosulfates, dithionites, polythionates [C01B 17/64](#); compounds containing selenium or tellurium [C01B 19/00](#); azides [C01B 21/08](#); {compounds other than ammonia or cyanogen, containing nitrogen, non-metals and optionally metals [C01B 21/082](#)}; metal imides or 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](#); compounds containing silicon [C01B 33/00](#); compounds containing boron [C01B 35/00](#))

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| 1/00 | Ammonia; Compounds thereof ({ C01C 3/08 , C01C 3/14 , C01C 3/16 , C01C 3/20 take precedence}) | 1/08 | . . Preparation of ammonia from nitrogenous organic substances |
| | NOTE | 1/083 | . . . {from molasses (treatment of molasses in general C13B 50/006)} |
| | Complex ammine salts, e.g. [Pd(NH ₃) ₄]Cl ₂ , are {also} classified in the relevant groups of subclasses C01D - C01G , according to the metal | 1/086 | . . . {from urea} |
| 1/003 | . {Storage or handling of ammonia} | 1/10 | . . Separation of ammonia from ammonia liquors, e.g. gas liquors {(as part of the ammonia synthesis process C01C 1/04)} |
| 1/006 | . . {making use of solid ammonia storage materials, e.g. complex ammine salts} | 1/12 | . . Separation of ammonia from gases and vapours {(as part of the ammonia synthesis process C01C 1/04)} |
| 1/02 | . Preparation, {purification} or separation of ammonia | 1/14 | . . . Saturators |
| 1/022 | . . {Preparation of aqueous ammonia solutions, i.e. ammonia water} | 1/16 | . Halides of ammonium |
| 1/024 | . . {Purification} | 1/162 | . . {Ammonium fluoride} |
| 1/026 | . . {Preparation of ammonia from inorganic compounds} | 1/164 | . . {Ammonium chloride} |
| 1/028 | . . . {from ammonium sulfate or sulfite} | 1/166 | . . {Ammonium bromide} |
| 1/04 | . . Preparation of ammonia by synthesis {in the gas phase} (preparation or purification of gas mixtures for ammonia synthesis { C01B 3/025 }) | 1/168 | . . {Ammonium iodide} |
| 1/0405 | . . . {from N ₂ and H ₂ in presence of a catalyst} | 1/18 | . Nitrates of ammonium |
| 1/0411 | {characterised by the catalyst} | 1/185 | . . {Preparation} |
| 1/0417 | {characterised by the synthesis reactor, e.g. arrangement of catalyst beds and heat exchangers in the reactor (arrangement of several reactors C01C 1/0405 ; fixed-bed reactors in general B01J 8/02)} | 1/20 | . Sulfides; Polysulfides |
| 1/0423 | {Cold wall reactors} | 1/22 | . Sulfites of ammonium |
| 1/0429 | {Fluidized or moving bed reactors} | 1/24 | . Sulfates of ammonium (C01C 1/14 takes precedence) |
| 1/0435 | {Horizontal reactors} | 1/242 | . . Preparation from ammonia and sulfuric acid or sulfur trioxide |
| 1/0441 | {Reactors with the catalyst arranged in tubes} | 1/244 | . . Preparation by double decomposition of ammonium salts with sulfates |
| 1/0447 | {Apparatus other than synthesis reactors} | 1/245 | . . Preparation from compounds containing nitrogen and sulfur |
| 1/0452 | {Heat exchangers} | 1/246 | . . . from sulfur-containing ammonium compounds |
| 1/0458 | {Separation of NH ₃ (during purge gas treatment C01C 1/0476)} | 1/247 | by oxidation with free oxygen |
| 1/0464 | {by absorption in liquids, e.g. water} | 1/248 | . . Preventing coalescing or controlling form or size of the crystals |
| 1/047 | {by condensation} | 1/249 | . . Deacidifying {or drying} the crystals |
| 1/0476 | {Purge gas treatment, e.g. for removal of inert gases or recovery of H ₂ } | 1/26 | . Carbonates or bicarbonates of ammonium |
| 1/0482 | {Process control; Start-up or cooling-down procedures} | 1/28 | . Methods of preparing ammonium salts in general |
| 1/0488 | {Processes integrated with preparations of other compounds, e.g. methanol, urea or with processes for power generation} | | NOTES |
| 1/0494 | . . . {using plasma or electric discharge} | | 1. This group <u>does not cover</u> ammonium salts of complex acids (other than complex cyanides) containing a metal in the anion, which are covered by the relevant groups of subclasses C01D - C01G , according to the metal. |
| | | | 2. Salts of polybasic acids with ammonium and a metal as cations are classified as though the ammonium were hydrogen. |

3/00 **Cyanogen; Compounds thereof**

- 3/001 . {Preparation by decomposing nitrogen-containing organic compounds, e.g. molasse waste or urea (by distillation of carbamates [C01C 3/02](#), [C01C 3/08](#), [C01C 3/14](#), [C01C 3/16](#); by decomposing formamide or ammonium formate [C01C 3/0204](#))}
- 3/002 . {Synthesis of metal cyanides or metal cyanamides from elementary nitrogen and carbides}
- 3/003 . {Cyanogen}
- 3/004 . {Halogenides of cyanogen}
- 3/005 . {Thiocyanogen}
- 3/006 . {Sulfurdicyanide}
- 3/007 . {Ammonium cyanide}
- 3/008 . {Cyanazide}
- 3/02 . Preparation, {separation or purification} of hydrogen cyanide {([C01C 3/001](#) takes precedence)}
- 3/0204 . . {from formamide or from ammonium formate}
- 3/0208 . . {Preparation in gaseous phase}
- 3/0212 . . . {from hydrocarbons and ammonia in the presence of oxygen, e.g. the Andrussov-process}
- 3/0216 {characterised by the catalyst used}
- 3/022 {Apparatus therefor}
- 3/0225 {characterised by the synthesis reactor}
- 3/0229 . . . {from hydrocarbons and ammonia in the absence of oxygen, e.g. HMA-process}
- 3/0233 {making use of fluidised beds, e.g. the Shawinigan-process}
- 3/0237 . . . {from carbon monoxide and ammonia}
- 3/0241 . . . {from alcohols or aldehydes}
- 3/0245 . . . {from organic nitriles, e.g. acetonitrile}
- 3/025 . . . {by using a plasma}
- 3/0254 . . {from cyanates or from thiocyanates}
- 3/0258 . . {from cyanamides or derivatives thereof}
- 3/0262 . . {from cyanides}
- 3/0266 . . . {from simple alkali or alkaline earth metal cyanides}
- 3/027 {Alkali metal cyanides}
- 3/0275 {Alkaline earth metal cyanides}
- 3/0279 . . . {from ammonium cyanide}
- 3/0283 . . . {from simple or complex cyanides of the noble metals}
- 3/0287 . . . {from simple or complex cyanides of other transition metals, e.g. from iron cyanides}
- 3/0291 . . . {from simple or complex cyanides of other metals}
- 3/0295 . . {Purification}
- 3/04 . . Separation from gases
- 3/06 . . Stabilisation of hydrogen cyanide
- 3/08 . . Simple or complex cyanides of metals {([C01C 3/001](#), [C01C 3/002](#) take precedence)}
- 3/10 . . Simple alkali metal cyanides
- 3/11 . . Complex cyanides
- 3/12 . . Simple or complex iron cyanides
- 3/14 . . Cyanic {or isocyanic} acid; Salts thereof {([C01C 3/001](#) takes precedence)}
- 3/145 . . {Isocyanic acid; Salts thereof}
- 3/16 . . Cyanamide; Salts thereof {([C01C 3/001](#), [C01C 3/002](#) takes precedence); dicyandiamide [C07C 279/28](#)}
- 3/18 . . Calcium cyanamide
- 3/20 . . Thiocyanic acid; Salts thereof {([C01C 3/001](#) takes precedence)}