

## ECLA

## EUROPEAN CLASSIFICATION

## C01C

**AMMONIA; CYANOGEN; COMPOUNDS THEREOF** ([N: metal hydrides, monoborane, diborane or addition complexes thereof [C01B6/00](#)]; salts of oxyacids of halogens [C01B11/00](#); peroxides, salts of peroxyacids [C01B15/00](#); thiosulfates, dithionites, polythionates [C01B17/64](#); compounds containing selenium or tellurium [C01B19/00](#); azides [C01B21/08](#); [N: compounds other than ammonia or cyanogen, containing nitrogen, non-metals and optionally metals [C01B21/082](#)]; metal imides or amides [C01B21/092](#); nitrites [C01B21/50](#); [N: compounds of noble gases [C01B23/00B](#)]; phosphides [C01B25/08](#); salts of oxyacids of phosphorus [C01B25/16](#); compounds containing silicon [C01B33/00](#); compounds containing boron [C01B35/00](#)] [C9602]

## C01C1/00

**Ammonia; Compounds thereof** [N: ([C01C3/08](#), [C01C3/14](#), [C01C3/16](#), [C01C3/20](#) take precedence)]

[N: **Note** [C1005]

Complex ammine salts, e.g.  $[\text{Pd}(\text{NH}_3)_4]\text{Cl}_2$ , are [N: also] classified in the relevant groups of subclasses C01D to C01G, according to the metal  
]

## C01C1/00S

. [N: Storage or handling of ammonia] [N0901]

## C01C1/00S2

. . [N: making use of solid ammonia storage materials, e.g. complex ammine salts] [N0902]

## C01C1/02

. Preparation, [N: purification] or separation of ammonia

## C01C1/02H

. . [N: Preparation of aqueous ammonia solutions, i.e. ammonia water]

## C01C1/02P

. . [N: Purification]

## C01C1/02T

. . [N: Preparation of ammonia from inorganic compounds] [C0908]

## C01C1/02T6

. . . [N: from ammonium sulfate or sulfite]

## C01C1/04

. . Preparation of ammonia by synthesis [N: in the gas phase] (preparation or purification of gas mixtures for ammonia synthesis [N: [C01B3/02B](#)]) [C0908]

## C01C1/04B

. . . [N: from  $\text{N}_2$  and  $\text{H}_2$  in presence of a catalyst]

## C01C1/04B2

. . . . [N: characterised by the catalyst]

## C01C1/04B4

. . . . [N: characterised by the synthesis reactor, e.g. arrangement of catalyst beds and heat exchangers in the reactor (arrangement of several reactors [C01C1/04B](#); fixed-bed reactors in general [B01J8/02](#))]

## C01C1/04B4C

. . . . . [N: Cold wall reactors] [N1009]

## C01C1/04B4F

. . . . . [N: Fluidized or moving bed reactors] [N1009]

## C01C1/04B4H

. . . . . [N: Horizontal reactors] [N1009]

## C01C1/04B4T

. . . . . [N: Reactors with the catalyst arranged in tubes] [N1009]

## C01C1/04B5

. . . . . [N: Apparatus other than synthesis reactors] [N9709]

## C01C1/04B5H

. . . . . [N: Heat exchangers] [N9709]

## C01C1/04B6

. . . . . [N: Separation of  $\text{NH}_3$  (during purge gas treatment [C01C1/04B8](#))]

## C01C1/04B6B

. . . . . [N: by absorption in liquids, e.g. water]

## C01C1/04B6D

. . . . . [N: by condensation]

## C01C1/04B8

. . . . . [N: Purge gas treatment, e.g. for removal of inert gases or recovery of  $\text{H}_2$ ]

- C01C1/04B10 . . . . [N: Process control; Start-up or cooling-down procedures] [N9709]
- C01C1/04B12 . . . . [N: Processes integrated with preparations of other compounds, e.g. methanol, urea or with processes for power generation] [N9709]
- C01C1/04G . . . [N: using plasma or electric discharge] [N0505]
- C01C1/08 . . Preparation of ammonia from nitrogenous organic substances
- C01C1/08B . . . [N: from molasses (treatment of molasses in general [C13J](#))]
- C01C1/08D . . . [N: from urea] [N0404]
- C01C1/10 . . Separation of ammonia from ammonia liquors, e.g. gas liquors [N: (as part of the ammonia synthesis process [C01C1/04](#))]
- C01C1/12 . . Separation of ammonia from gases and vapours [N: (as part of the ammonia synthesis process [C01C1/04](#))]
- C01C1/14 . . . Saturators
- C01C1/16 . Halides of ammonium
- C01C1/16A . . [N: Ammonium fluoride] [N9604]
- C01C1/16B . . [N: Ammonium chloride] [N9604]
- C01C1/16C . . [N: Ammonium bromide] [N9604]
- C01C1/16D . . [N: Ammonium iodide] [N9604]
- C01C1/18 . Nitrates of ammonium
- C01C1/18B . . [N: Preparation] [N9610]
- C01C1/20 . Sulfides; Polysulfides
- C01C1/22 . Sulfites of ammonium
- C01C1/24 . Sulfates of ammonium ([C01C1/14](#) takes precedence)
- C01C1/242 . . Preparation from ammonia and sulfuric acid or sulfur trioxide
- C01C1/244 . . Preparation by double decomposition of ammonium salts with sulfates
- C01C1/245 . . Preparation from compounds containing nitrogen and sulfur
- C01C1/246 . . . from sulfur-containing ammonium compounds
- C01C1/247 . . . . by oxidation with free oxygen
- C01C1/248 . . Preventing coalescing or controlling form or size of the crystals
- C01C1/249 . . Deacidifying [N: or drying] the crystals
- C01C1/26 . Carbonates or bicarbonates of ammonium
- C01C1/28 . Methods of preparing ammonium salts in general

### **Notes**

1. This group does not cover 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 to 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.

- C01C3/00B . [N: Preparation by decomposing nitrogen-containing organic compounds, e.g. molasse waste or urea (by distillation of carbamates [C01C3/02](#), [C01C3/08](#), [C01C3/14](#), [C01C3/16](#); by decomposing formamide or ammonium formate [C01C3/02B](#))]
- C01C3/00D . [N: Synthesis of metal cyanides or metal cyanamides from elementary nitrogen and carbides]
- C01C3/00F . [N: Cyanogen] [N9711]
- C01C3/00G . [N: Halogenides of cyanogen]
- C01C3/00H . [N: Thiocyanogen] [N9711]
- C01C3/00J . [N: Sulfurdicyanide] [N9711]
- C01C3/00K . [N: Ammonium cyanide] [N9711]
- C01C3/00N . [N: Cyanazide] [N9711]
- C01C3/02 . Preparation, [N: separation or purification] of hydrogen cyanide [N: ([C01C3/00B](#) takes precedence)] [C9711]
- C01C3/02B . . [N: from formamide or from ammonium formate]
- C01C3/02D . . [N: Preparation in gaseous phase]
- C01C3/02D1 . . . [N: from hydrocarbons and ammonia in the presence of oxygen, e.g. the Andrussov-process] [N9906]
- C01C3/02D1B . . . . [N: characterised by the catalyst used] [N9906]
- C01C3/02D1D . . . . [N: Apparatus therefor] [N9906]
- C01C3/02D1D2 . . . . . [N: characterised by the synthesis reactor] [N9906]
- C01C3/02D2 . . . [N: from hydrocarbons and ammonia in the absence of oxygen, e.g. HMA-process]
- C01C3/02D2F . . . . [N: making use of fluidised beds, e.g. the Shawinigan-process] [N9603]
- C01C3/02D4 . . . [N: from carbon monoxide and ammonia]
- C01C3/02D6 . . . [N: from alcohols or aldehydes] [N9906]
- C01C3/02D8 . . . [N: from organic nitriles, e.g. acetonitrile] [N9906]
- C01C3/02D10 . . . [N: by using a plasma]
- C01C3/02G . . [N: from cyanates or from thiocyanates]
- C01C3/02H . . [N: from cyanamides or derivatives thereof] [N9711]
- C01C3/02K . . [N: from cyanides] [N9711]
- C01C3/02K2 . . . [N: from simple alkali or alkaline earth metal cyanides] [N9711]
- C01C3/02K2B . . . . [N: Alkali metal cyanides] [N9711]
- C01C3/02K2D . . . . [N: Alkaline earth metal cyanides] [N9711]
- C01C3/02K3 . . . [N: from ammonium cyanide] [N9711]
- C01C3/02K6 . . . [N: from simple or complex cyanides of the noble metals] [N9711]
- C01C3/02K8 . . . [N: from simple or complex cyanides of other transition metals, e.g. from iron cyanides] [N9711]
- C01C3/02K10 . . . [N: from simple or complex cyanides of other metals] [N9711]
- C01C3/02P . . [N: Purification] [N9501]

- C01C3/04
  - . . Separation from gases
- C01C3/06
  - . Stabilisation of hydrogen cyanide
- C01C3/08
  - . Simple or complex cyanides of metals [N: ([C01C3/00B](#), [C01C3/00D](#) take precedence)]
- C01C3/10
  - . . Simple alkali metal cyanides
- C01C3/11
  - . . Complex cyanides
- C01C3/12
  - . . Simple or complex iron cyanides
- C01C3/14
  - . Cyanic [N: or isocyanic] acid; Salts thereof [N: ([C01C3/00B](#) takes precedence)]  
[C9712]
- C01C3/14F
  - . . [N: Isocyanic acid; Salts thereof] [N9711]
- C01C3/16
  - . Cyanamide; Salts thereof ([N: [C01C3/00B](#), [C01C3/00D](#) takes precedence];  
dicyandiamide [C07C279/28](#))
- C01C3/18
  - . . Calcium cyanamide
- C01C3/20
  - . Thiocyanic acid; Salts thereof [N: ([C01C3/00B](#) takes precedence)]